From: Biggio, Patricia [biggio.patricia@epa.gov]

Sent: 3/7/2019 3:23:45 PM

To: Shelat, Shalu [Shelat.Shalu@epa.gov]; VanAlstine, Julie [VanAlstine.Julie@epa.gov]; Yang, Yung

[Yang.Yung@epa.gov]; Ertman, AWillis [Ertman.AWillis@epa.gov]; Orrick, Greg [Orrick.Greg@epa.gov]; Farruggia,

Frank [Farruggia.Frank@epa.gov]; Wente, Stephen [Wente.Stephen@epa.gov]; Khan, Faruque

[Khan.Faruque@epa.gov]; Chism, William [Chism.Bill@epa.gov]; English, LisaRenee [English.LisaRenee@epa.gov];

Lee, Andrew [Lee.Andrew@epa.gov]

CC: Akerman, Gregory [Akerman.Gregory@epa.gov]; Sankula, Sujatha [Sankula.Sujatha@epa.gov]; Blankinship, Amy

[Blankinship.Amy@epa.gov]; Myers, Tom [Myers.Tom@epa.gov]; Kiely, Timothy [Kiely.Timothy@epa.gov]; Sims,

Diann [Sims.Diann@epa.gov]; Kaul, Monisha [Kaul.Monisha@epa.gov]

Subject: RE: Draft trifluralin PID for review **Attachments**: Trifluralin draft slide, 3-7-19.docx

Hi All,

We are also preparing slides for chemical program review. Below and attached is a draft of the trifluralin slide, we are asking for comments/edits on the slide by Tuesday, 3/12. If you have any questions, please let me know.

Thank you again, Trish

Ex. 5 Deliberative Process (DP)

From: Biggio, Patricia

Sent: Wednesday, March 6, 2019 1:09 PM

To: Shelat, Shalu <Shelat.Shalu@epa.gov>; VanAlstine, Julie <VanAlstine.Julie@epa.gov>; Yang, Yung <Yang.Yung@epa.gov>; Ertman, AWillis <Ertman.AWillis@epa.gov>; Orrick, Greg <Orrick.Greg@epa.gov>; Farruggia,

Frank <Farruggia.Frank@epa.gov>; Wente, Stephen <Wente.Stephen@epa.gov>; Khan, Faruque

<Khan.Faruque@epa.gov>; Chism, William <Chism.Bill@epa.gov>; English, LisaRenee <English.LisaRenee@epa.gov>;

Lee, Andrew < Lee. Andrew@epa.gov>

Cc: Akerman, Gregory <Akerman.Gregory@epa.gov>; Sankula, Sujatha <Sankula.Sujatha@epa.gov>; Blankinship, Amy <Blankinship.Amy@epa.gov>; Myers, Tom <Myers.Tom@epa.gov>; Timothy Kiely <Kiely.Timothy@epa.gov>; Sims, Diann <Sims.Diann@epa.gov>; Kaul, Monisha <Kaul.Monisha@epa.gov>

Subject: Draft trifluralin PID for review

Hello Trifluralin Team,

Here is the link to the draft trifluralin PID on SharePoint:

https://usepa.sharepoint.com/:f:/r/sites/ocspp_Work/pesticideregistrationreview/Schedules/Trifluralin?csf=1&e=1eoVjh

Ex. 5 Deliberative Process (DP)

Thank you, Trish

Patricia Biggio Chemical Review Manager Pesticide Re-evaluation Division Office of Pesticide Programs, EPA Phone: 703-347-0547



biggio.patricia@epa.gov

NOTICE: This communication may contain privileged or other confidential information. If you are not the intended recipient, or believe you have received this communication in error, please delete the copy you received, and do not print, copy, retransmit, disseminate, or otherwise use the information. Thank you.

From: Suarez, Mark [Suarez.Mark@epa.gov]

Sent: 9/27/2018 1:16:55 PM

To: Sims, Diann [Sims.Diann@epa.gov]

Subject: RE: ESA meeting

Diann,

I've responded to your questions below.

Regards, Mark

Mark Suarez
Entomologist
Science Information and Analysis Branch
Biological and Economic Analysis Division
US EPA (Mail Code 7503P)
1200 Pennsylvania Avenue, NW
Washington, DC 20460

phone: 703-305-0120

From: Sims, Diann

Sent: Wednesday, September 26, 2018 4:58 PM **To:** Suarez, Mark <Suarez.Mark@epa.gov>

Subject: RE: ESA meeting

From: Suarez, Mark

Sent: Wednesday, September 26, 2018 3:59 PM

To: Sims, Diann <Sims.Diann@epa.gov>

Subject: ESA meeting

Diann,

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Regards, Mark

Mark Suarez
Entomologist
Science Information and Analysis Branch
Biological and Economic Analysis Division
US EPA (Mail Code 7503P)
1200 Pennsylvania Avenue, NW
Washington, DC 20460

phone: 703-305-0120

From: Atwood, Donald [Atwood.Donald@epa.gov]

Sent: 7/2/2018 1:30:13 PM

To: Sims, Diann [Sims.Diann@epa.gov]

Subject: Re: Agenda for Pesticide Usage Meeting 6/26/18

Ex. 5 Deliberative Process (DP)

Donald W. Atwood, PhD
Entomologist
Office of Pesticide Programs
Biological and Economic Analysis Divsion
Biological Analysis Branch
Environmental Protection Agency

email: atwood.donald@epa.gov

Phone: (703) 308-8088

From: Sims, Diann

Sent: Monday, July 2, 2018 9:24 AM

To: Atwood, Donald

Subject: RE: Agenda for Pesticide Usage Meeting 6/26/18

Ex. 5 Deliberative Process (DP)

From: Atwood, Donald

Sent: Monday, July 2, 2018 9:14 AM **To:** Sims, Diann <Sims.Diann@epa.gov>

Subject: Re: Agenda for Pesticide Usage Meeting 6/26/18

Ex. 5 Deliberative Process (DP)

Donald W. Atwood, PhD
Entomologist
Office of Pesticide Programs
Biological and Economic Analysis Divsion
Biological Analysis Branch
Environmental Protection Agency

email: atwood.donald@epa.gov

Phone: (703) 308-8088

From: Sims, Diann

Sent: Monday, July 2, 2018 9:08 AM

To: Atwood, Donald

Subject: FW: Agenda for Pesticide Usage Meeting 6/26/18

Morning Don,

You're missing great coffee this morning......

See below. We should get started on updating the malathion CA PCTs and then meet internally to discuss any issues that might concern NFMS.

From: Ryan DeWitt - NOAA Affiliate [mailto:ryan.dewitt@noaa.gov]

Sent: Friday, June 29, 2018 5:36 PM

To: Suarez, Mark < Suarez. Mark@epa.gov>

Cc: Sims, Diann <Sims.Diann@epa.gov>; Nancy Golden <nancy_golden@fws.gov>; scott.hecht@noaa.gov; tony.hawkes@noaa.gov; andrew_raabe@fws.gov; Garber, Kristina <Garber.Kristina@epa.gov>; ashley_stilson@fws.gov; david.baldwin@noaa.gov; elizabeth.hill2@ars.usda.gov; david epstein <David.Epstein@ARS.USDA.GOV>; George Noguchi <george_noguchi@fws.gov>; thomas.hooper@noaa.gov; cathy.tortorici@noaa.gov; clayton.myers@ars.usda.gov; Becker, Jonathan <Becker.Jonathan@epa.gov>; Paisley-Jones, Claire <Paisley-Jones.Claire@epa.gov>

Subject: Re: Agenda for Pesticide Usage Meeting 6/26/18

Mark,

Ex. 5 Deliberative Process (DP)

Thanks and please let us know if you have any questions

On Mon, Jun 25, 2018 at 6:59 PM, Suarez, Mark <Suarez.Mark@epa.gov> wrote:

All,

Please find the slide deck relevant to correction of the CalDPR spreadsheet calculated PCTs attached.

Regards, Mark

Mark Suarez
Entomologist
Science Information and Analysis Branch
Biological and Economic Analysis Division
US EPA (Mail Code 7503P)
1200 Pennsylvania Avenue, NW
Washington, DC 20460

phone: 703-305-0120

From: Sims, Diann

Sent: Monday, June 25, 2018 4:40 PM

To: Nancy Golden <nancy golden@fws.gov>; Ryan DeWitt <ryan.dewitt@noaa.gov>; scott.hecht@noaa.gov; tony.hawkes@noaa.gov; andrew raabe@fws.gov; Garber, Kristina <Garber.Kristina@epa.gov>; sheryl.kunickis@osec.usda.gov; ashley stilson@fws.gov; david.baldwin@noaa.gov; elizabeth.hill2@ars.usda.gov; craig aubrey@fws.gov; Miller, Wynne <Miller.Wynne@epa.gov>; david epstein <David.Epstein@ARS.USDA.GOV>; George Noguchi <george noguchi@fws.gov>; Patrice Ashfield <patrice ashfield@fws.gov>; thomas.hooper@noaa.gov; cathy.tortorici@noaa.gov; Echeverria, Marietta <Echeverria.Marietta@epa.gov>; clayton.myers@ars.usda.gov; Shultz, Gina <gina shultz@fws.gov>; Becker, Jonathan <Becker.Jonathan@epa.gov>; Paisley-Jones, Claire <Paisley-Jones.Claire@epa.gov>; Suarez, Mark <Suarez.Mark@epa.gov>

Subject: RE: Agenda for Pesticide Usage Meeting 6/26/18

Thank you Nancy,

Shortly, we'll send everyone a slide deck for tomorrow's discussion on the CADPR PCT. Have a great evening.

From: Google Calendar [mailto:calendar-notification@google.com] On Behalf Of nancy_golden@fws.gov Sent: Monday, June 25, 2018 3:44 PM

To: Ryan DeWitt <ryan.dewitt@noaa.gov>; scott.hecht@noaa.gov; tony.hawkes@noaa.gov; andrew_raabe@fws.gov; Garber, Kristina <Garber.Kristina@epa.gov>; sheryl.kunickis@osec.usda.gov; ashley_stilson@fws.gov; david.baldwin@noaa.gov; elizabeth.hill2@ars.usda.gov; craig_aubrey@fws.gov; Miller, Wynne <mi><miller.Wynne@epa.gov>; david epstein <David.Epstein@ARS.USDA.GOV>; George Noguchi <george_noguchi@fws.gov>; Sims, Diann <Sims.Diann@epa.gov>; Patrice Ashfield <patrice_ashfield@fws.gov>; thomas.hooper@noaa.gov; cathy.tortorici@noaa.gov; Echeverria, Marietta <Echeverria.Marietta@epa.gov>; clayton.myers@ars.usda.gov; Shultz, Gina <gina_shultz@fws.gov>; Nancy Golden <nancy_golden@fws.gov>; Becker, Jonathan@epa.gov>; Paisley-Jones, Claire <Paisley-Jones.Claire@epa.gov>

Subject: Agenda for Pesticide Usage Meeting 6/26/18

Agenda:

Usage catalog - FWS

Other task list items due in June (CalDPR corrections, Kynetec request, usage data from BE/BO comments) Updates from workgroups

- Hawaii
- California
- Mosquito adulticide

Any other updates/topics?

Next steps

Pesticide Usage Meeting Conference line - §

Ex. 6 - Conference Code

Conference line **Ex. 6 – Conference Code**

When Tue Jun 26, 2018 1pm - 3pm Eastern Time

Where 866-724-0069 Passcode - 8861933 (map)

Who

- Gina Shultz@fws.gov organizer
- lois wellman@fws.gov creator
- cathy.tortorici@noaa.gov
- garber.kristina@epa.gov
- echeverria.marietta@epa.gov
- sheryl.kunickis@osec.usda.gov
- miller.wynne@epa.gov
- becker.jonathan@epa.gov
- george_noguchi@fws.gov
- david.epstein@ars.usda.gov
- nancy golden@fws.gov
- clayton.myers@ars.usda.gov
- sims.diann@epa.gov
- paisley-jones.claire@epa.gov
- tony.hawkes@noaa.gov
- sara_omar@ios.doi.gov
- ashley_stilson@fws.gov
- david.baldwin@noaa.gov
- elizabeth.hill2@ars.usda.gov

--

Ryan DeWitt Contractor with Ocean Associates, Inc. National Marine Fisheries Service Office of Protected Resources 510 Desmond Drive SE Suite 103 Lacey, WA 98503

Telephone: (360) 753-9595 ryan.dewitt@noaa.gov

From: Suarez, Mark [Suarez.Mark@epa.gov]

Sent: 9/26/2018 7:58:59 PM

To: Sims, Diann [Sims.Diann@epa.gov]

Subject: ESA meeting

Diann,

Once everyone has a chance to catch their breath after that meeting, I intended to follow-up with them. I didn't feel like I had a chance to get a word with the energy and multiple conversations going on.

Ex. 6 – Conference Code

Regards, Mark

Mark Suarez
Entomologist
Science Information and Analysis Branch
Biological and Economic Analysis Division
US EPA (Mail Code 7503P)
1200 Pennsylvania Avenue, NW
Washington, DC 20460

phone: 703-305-0120

From: Kaul, Monisha [Kaul.Monisha@epa.gov]

Sent: 5/31/2018 6:24:42 PM

To: Sims, Diann [Sims.Diann@epa.gov]; Kiely, Timothy [Kiely.Timothy@epa.gov]

CC: Jones, Arnet [Jones.Arnet@epa.gov]

Subject: RE: 2012-2016 Usage Summaries from the S Drive

Great.

Ex. 5 Deliberative Process (DP)

From: Sims, Diann

Sent: Thursday, May 31, 2018 11:42 AM

To: Kaul, Monisha < Kaul. Monisha@epa.gov>; Kiely, Timothy < Kiely. Timothy@epa.gov>

Cc: Jones, Arnet < Jones. Arnet@epa.gov>

Subject: RE: 2012-2016 Usage Summaries from the S Drive

l agree. I think the folks (Don, Claire, Dex) can agree on the issues that need to be addressed prior to running

Ex. 5 Deliberative Process (DP)

From: Kaul, Monisha

Sent: Thursday, May 31, 2018 11:05 AM

To: Kiely, Timothy < Kiely. Timothy@epa.gov>; Sims, Diann < Sims. Diann@epa.gov>

Cc: Jones, Arnet < Jones. Arnet@epa.gov>

Subject: FW: 2012-2016 Usage Summaries from the S Drive

Tim and Diann,

Ex. 5 Deliberative Process (DP)

Thank you.

Monisha

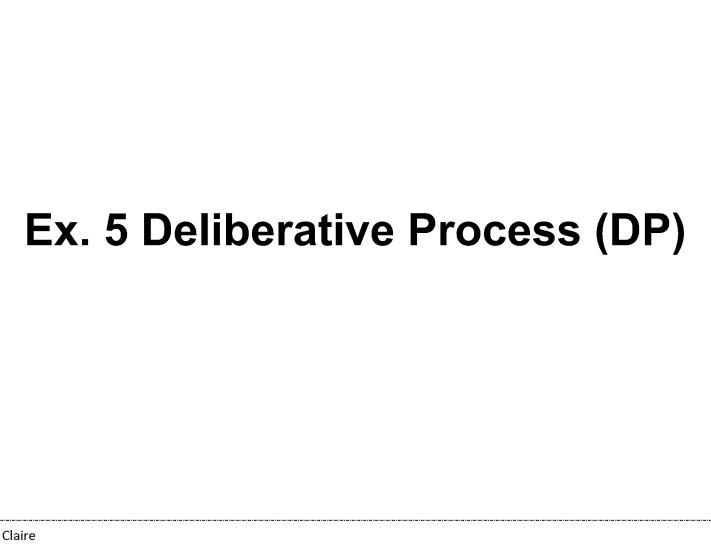
From: Paisley-Jones, Claire

Sent: Tuesday, May 29, 2018 4:13 PM

To: Sells, Dexter < Sells.Dexter@epa.gov>; Atwood, Donald < Atwood.Donald@epa.gov>; OPP BEAD EAB

<OPP_BEAD_EAB@epa.gov>; OPP BEAD BAB < OPP_BEAD_BAB@epa.gov>; OPP BEAD SIAB < OPP_BEAD_SIAB@epa.gov>

Subject: RE: 2012-2016 Usage Summaries from the S Drive



From: Sells, Dexter

Sent: Tuesday, May 29, 2018 3:28 PM

To: Paisley-Jones, Claire < Paisley-Jones.Claire@epa.gov >; Atwood, Donald < Atwood.Donald@epa.gov >; OPP BEAD EAB <OPP BEAD EAB@epa.gov>; OPP BEAD BAB <OPP BEAD BAB@epa.gov>; OPP BEAD SIAB@epa.gov>

Subject: RE: 2012-2016 Usage Summaries from the S Drive

Claire,

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Dexter

From: Paisley-Jones, Claire

Sent: Tuesday, May 29, 2018 14:41

To: Sells, Dexter <<u>Sells.Dexter@epa.gov</u>>; Atwood, Donald <<u>Atwood.Donald@epa.gov</u>>; OPP BEAD EAB <<u>OPP BEAD BAB@epa.gov</u>>; OPP BEAD SIAB@epa.gov>; OPP BEAD SIAB@epa.gov>

Subject: RE: 2012-2016 Usage Summaries from the S Drive

Hi Dexter et al.,

Ex. 5 Deliberative Process (DP)

From: Sells, Dexter

Sent: Tuesday, May 29, 2018 8:35 AM

To: Atwood, Donald Atwood, Donald@epa.gov; OPP BEAD EAB OPP_BEAD_EAB@epa.gov; OPP BEAD BAB

<OPP BEAD BAB@epa.gov>; OPP BEAD SIAB < OPP BEAD SIAB@epa.gov>

Subject: RE: 2012-2016 Usage Summaries from the S Drive

Don,

Ex. 5 Deliberative Process (DP)

From: Atwood, Donald

Sent: Monday, May 28, 2018 14:16

To: Sells, Dexter < Sells.Dexter@epa.gov >; OPP BEAD EAB < OPP BEAD EAB@epa.gov >; OPP BEAD BAB

<OPP BEAD BAB@epa.gov>; OPP BEAD SIAB < OPP BEAD SIAB@epa.gov>

Subject: Re: 2012-2016 Usage Summaries from the S Drive

Ex. 5 Deliberative Process (DP)

Donald W. Atwood, PhD
Entomologist
Office of Pesticide Programs
Biological and Economic Analysis Divsion
Biological Analysis Branch
Environmental Protection Agency

email: atwood.donald@epa.gov

Phone: (703) 308-8088

From: Sells, Dexter

Sent: Friday, May 25, 2018 1:06 PM

To: OPP BEAD EAB; OPP BEAD BAB; OPP BEAD SIAB **Subject:** 2012-2016 Usage Summaries from the S Drive

Hello everyone,

Ex. 5 Deliberative Process (DP)

Dexter

National Data

https://usepa.sharepoint.com/:x:/r/sites/OCSPP/OPP/BEAD/Collaborate/Shared%20Documents/EAB/PctCropT reated_across_year_NationalwithlbsAIPCT_2016%20DEXTER%20IS%20THE%20MAN.xlsx?d=w12f38e3d35584792a3d3ea9a14a39ec5&csf=1&e=xAvVYQ



Shared via SharePoint

Fungicide Almonds IPRODIONE 369889 398771 196509 184 963009 501155 627945 307291 201 963009 444642 467501 231775 188 983948 367277 378502 ...

State Data

https://usepa.sharepoint.com/:x:/r/sites/OCSPP/OPP/BEAD/Collaborate/Shared%20Documents/EAB/PctCropT reated_across_year_StatewithlbsAIPCT_2016%20DEXTER%20IS%20THE%20MAN.xlsx?d=w13be639d680a 486c950da07a4d749671&csf=1&e=wRHioE

PLEASE (I beg thee, I implore thee, and if the need arises, I'll scorn thee) do not overwrite the spreadsheet. – The 40th Commandment; Sections 155.56 and 155.58

From: Kiely, Timothy [Kiely.Timothy@epa.gov]

Sent: 5/31/2018 3:39:03 PM

To: Kaul, Monisha [Kaul.Monisha@epa.gov]; Sims, Diann [Sims.Diann@epa.gov]

CC: Jones, Arnet [Jones.Arnet@epa.gov]

Subject: RE: 2012-2016 Usage Summaries from the S Drive

Thank you Monisha. I am fine with that suggestion, we should be consistent.

Tim

From: Kaul, Monisha

Sent: Thursday, May 31, 2018 11:05 AM

To: Kiely, Timothy <Kiely. Timothy@epa.gov>; Sims, Diann <Sims. Diann@epa.gov>

Cc: Jones, Arnet < Jones. Arnet@epa.gov>

Subject: FW: 2012-2016 Usage Summaries from the S Drive

Tim and Diann,

Ex. 5 Deliberative Process (DP)

Let me know if you're okay with me proposing this to the division.

Thank you.

Monisha

From: Paisley-Jones, Claire

Sent: Tuesday, May 29, 2018 4:13 PM

To: Sells, Dexter <<u>Sells.Dexter@epa.gov</u>>; Atwood, Donald <<u>Atwood.Donald@epa.gov</u>>; OPP BEAD EAB

<OPP_BEAD_EAB@epa.gov>; OPP BEAD BAB <OPP_BEAD_BAB@epa.gov>; OPP BEAD SIAB <OPP_BEAD_SIAB@epa.gov>

Subject: RE: 2012-2016 Usage Summaries from the S Drive

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Claire

From: Sells, Dexter

Sent: Tuesday, May 29, 2018 3:28 PM

To: Paisley-Jones, Claire <<u>Paisley-Jones.Claire@epa.gov</u>>; Atwood, Donald <<u>Atwood.Donald@epa.gov</u>>; OPP BEAD EAB <<u>OPP BEAD EAB@epa.gov</u>>; OPP BEAD SIAB <<u>OPP BEAD SIAB@epa.gov</u>>

Subject: RE: 2012-2016 Usage Summaries from the S Drive

Claire,

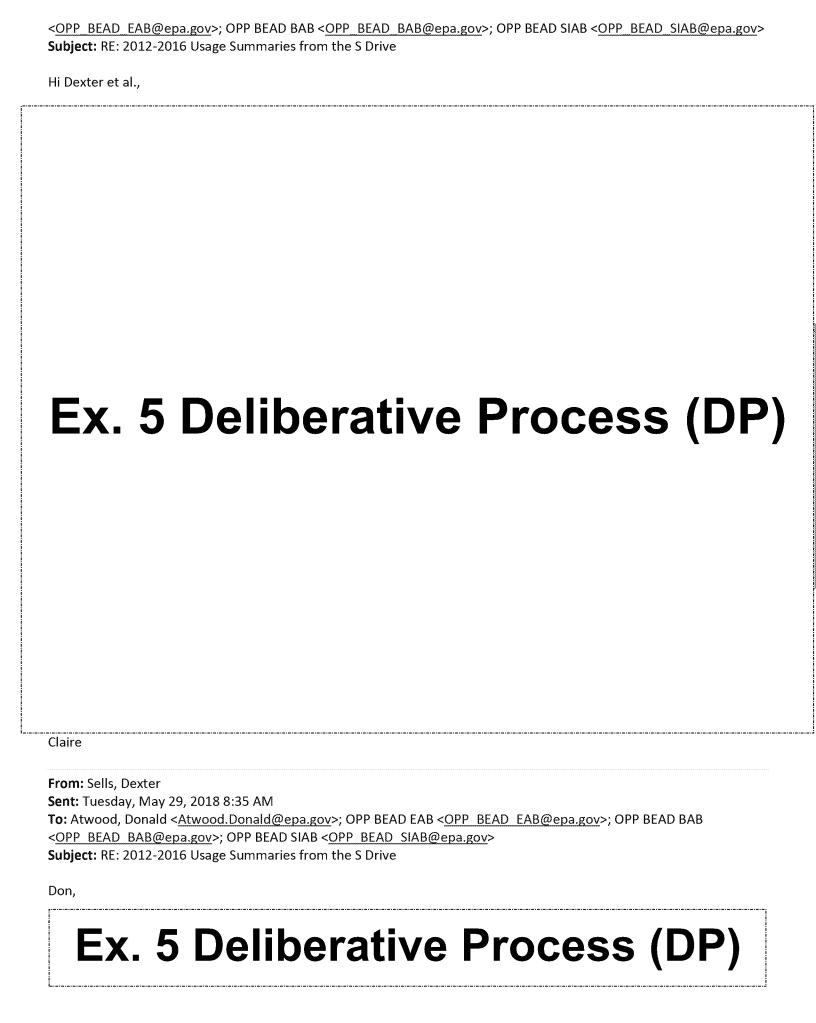
Ex. 5 Deliberative Process (DP)

Dexter

From: Paisley-Jones, Claire

Sent: Tuesday, May 29, 2018 14:41

To: Sells, Dexter <<u>Sells.Dexter@epa.gov</u>>; Atwood, Donald <<u>Atwood.Donald@epa.gov</u>>; OPP BEAD EAB



Dexter

From: Atwood, Donald

Sent: Monday, May 28, 2018 14:16

To: Sells, Dexter < Sells. Dexter@epa.gov >; OPP BEAD EAB < OPP BEAD EAB@epa.gov >; OPP BEAD BAB

<OPP BEAD BAB@epa.gov>; OPP BEAD SIAB <OPP BEAD SIAB@epa.gov>

Subject: Re: 2012-2016 Usage Summaries from the S Drive

Ex. 5 Deliberative Process (DP)

Donald W. Atwood, PhD
Entomologist
Office of Pesticide Programs
Biological and Economic Analysis Divsion
Biological Analysis Branch
Environmental Protection Agency

email: atwood.donald@epa.gov

Phone: (703) 308-8088

From: Sells, Dexter

Sent: Friday, May 25, 2018 1:06 PM

To: OPP BEAD EAB; OPP BEAD BAB; OPP BEAD SIAB **Subject:** 2012-2016 Usage Summaries from the S Drive

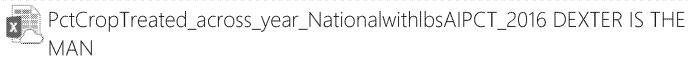
Hello everyone,

Ex. 5 Deliberative Process (DP)

Dexter

National Data

https://usepa.sharepoint.com/:x:/r/sites/OCSPP/OPP/BEAD/Collaborate/Shared%20Documents/EAB/PctCropT reated across year NationalwithlbsAIPCT 2016%20DEXTER%20IS%20THE%20MAN.xlsx?d=w12f38e3d3 5584792a3d3ea9a14a39ec5&csf=1&e=xAvVYQ



Shared via SharePoint

Fungicide Almonds IPRODIONE 369889 398771 196509 184 963009 501155 627945 307291 201 963009 444642 467501 231775 188 983948 367277 378502 ...

State Data

https://usepa.sharepoint.com/:x:/r/sites/OCSPP/OPP/BEAD/Collaborate/Shared%20Documents/EAB/PctCropTreated_across_year_StatewithlbsAIPCT_2016%20DEXTER%20IS%20THE%20MAN.xlsx?d=w13be639d680a486c950da07a4d749671&csf=1&e=wRHioE

PLEASE (I beg thee, I implore thee, and if the need arises, I'll scorn thee) do not overwrite the spreadsheet. – The 40th Commandment; Sections 155.56 and 155.58

Atwood, Donald [Atwood.Donald@epa.gov] From:

2/8/2018 8:59:58 PM Sent:

To: Sims, Diann [Sims.Diann@epa.gov]

Subject: RE: Usage data and PCT

Ex. 5 Deliberative Process (DP)

Don Atwood, Ph.D. - Entomologist US Environmental Protection Agency Office of Chemical Safety & Pollution Prevention Office of Pesticide Programs Biological and Economic Analysis Division Science Information and Analysis Branch

(703) 308-8088 atwood.donald@epa.gov

----Original Message----

From: Sims, Diann

Sent: Thursday, February 08, 2018 3:56 PM

To: Paisley-Jones, Claire <Paisley-Jones.Claire@epa.gov>; Atwood, Donald <Atwood.Donald@epa.gov>

Subject: FW: Usage data and PCT

Ex. 5 Deliberative Process (DP)

----Original Message----

From: Corbin, Mark

Sent: Thursday, February 8, 2018 3:24 PM To: Sims, Diann <Sims.Diann@epa.gov> Subject: Usage data and PCT

Ex. 5 Deliberative Process (DP)

Sent from my iPhone

From: Anderson, Brian [Anderson.Brian@epa.gov]

Sent: 1/22/2018 2:12:36 PM

To: Sims, Diann [Sims.Diann@epa.gov]
CC: Pease, Anita [Pease.Anita@epa.gov]

Subject: RE: use and usage summary

Thanks Diann!

Brian

From: Sims, Diann

Sent: Monday, January 22, 2018 9:12 AM

To: Anderson, Brian < Anderson. Brian@epa.gov>

Cc: Pease, Anita <Pease.Anita@epa.gov> **Subject:** Re: use and usage summary

This correctly reflects the BEAD tasks and timeline.

On Jan 19, 2018, at 10:25 AM, Anderson, Brian < Anderson, Brian@epa.gov > wrote:

Hi guys,

So is this accurate? I'm putting together a one pager for Rick on what's going on with ESA.

Thanks

Brian

Request for Use and Usage Data

- Use and usage data are being compiled so that they can be incorporated into the proposed revised methods and upon request from Fish and Wildlife Service for incorporation into their BiOP.
- Workshop is currently being planned with EPA, USDA, and the Services to discuss how to incorporate the data into the BE and BiOP process. It is expected to occur late winter, 2018.
- The information currently being compiled is the same information that was compiled for diazinon and includes pounds applied, acres treated, application rates, and percent crop treated for labeled agricultural crops at the national and state level as data allow. Limited information on non-agricultural uses are also being collected as data allow such as ornamental plants grown in nurseries.
- Use and Usage data are being compiled for the first 5 pilot chemicals according the following schedule:

Diazinon: Complete

Methomyl:

Draft: Completed
 Final: January 31st

Carbaryl:

Draft: Completed
 Final: February 28th

Chlorpyrifos:

Draft: Early February
 Final: April 30th

Malathion

Draft: Early March
 Final: May 31st

From: Miller, Wynne [Miller.Wynne@epa.gov]

Sent: 1/24/2018 3:33:45 PM

To: Sims, Diann [Sims.Diann@epa.gov]

Subject: Fwd: OPP General Follow-up: Timeline for Providing Additional Use and Usage Data to Support ESA Pesticide

Consultations

Attachments: Request for additional info regarding OP pesticide consultation 1114201....pdf; ATT00001.htm; Response to Request

for Additional Info on OP Pesticide Consultation.pdf; ATT00002.htm; Echeverria follow up 12.15.17.pdf;

ATT00003.htm; Echeverria follow up 12.17.17.pdf; ATT00004.htm

Hi Diann.

Please see the timeline for our stuff. Are we still on track to meet? We can't miss these.

Thx

Wynne

Sent from my iPhone

Begin forwarded message:

From: "Keigwin, Richard" < Keigwin. Richard@epa.gov>

Date: January 24, 2018 at 9:18:25 AM EST

To: "Bertrand, Charlotte" <Bertrand.Charlotte@epa.gov>, "Beck, Nancy" <Beck, Nancy@epa.gov>,

"Wise, Louise" < Wise.Louise@epa.gov>

Cc: "Keller, Kaitlin" < keller.kaitlin@epa.gov>, "Dinkins, Darlene" < Dinkins.Darlene@epa.gov>,

"Echeverria, Marietta" < Echeverria. Marietta@epa.gov>, "Miller, Wynne" < Miller. Wynne@epa.gov>

Subject: FW: OPP General Follow-up: Timeline for Providing Additional Use and Usage Data to Support ESA Pesticide Consultations

A couple of other points:

- <!--[if !supportLists]--><!--[endif]-->The types of use/usage data we will be developing include: pounds a.i. applied, number of acres treated, and percent crop treated for labeled agricultural crops at the national and state levels, as data allow. Limited information is available for nonagricultural use sites are being collected, as data sources allow.
- <!--[if !supportLists]--><!--[endif]-->We expect to have draft BEs for carbaryl and methomyl utilizing the proposed/updated methodologies (aka, the "strawman") by the end of September 2018. We will need to talk about how to include some external engagement subsequent to September 2018, understanding that the Services are under settlements to have the BiOps for these two chemicals completed by the end of 2018.

From: Keigwin, Richard

Sent: Wednesday, January 24, 2018 7:36 AM

To: Bertrand, Charlotte < Bertrand. Charlotte@epa.gov >; Beck, Nancy < beck.nancy@epa.gov >; Louise

Wise (Wise.Louise@epa.gov) < Wise.Louise@epa.gov>

Cc: Keller, Kaitlin keller, Kaitlin@epa.gov; Darlene Dinkins (Dinkins.Darlene@epa.gov)

<<u>Dinkins.Darlene@epa.gov</u>>; Marietta Echeverria (<u>Echeverria.Marietta@epa.gov</u>)

<<u>Echeverria.Marietta@epa.gov</u>>; Wynne Miller <<u>Miller.Wynne@epa.gov</u>>

Subject: OPP General Follow-up: Timeline for Providing Additional Use and Usage Data to Support ESA

Pesticide Consultations

As a follow-up to yesterday's OPP General, I am attaching the following:

- <!--[if !supportLists]--><!--[endif]-->November 14, 2017, Letter from FWS requesting additional data to support the ongoing consultation for chlorpyrifos, diazinon, and malathion
- <!--[if !supportLists]--><!--[endif]-->November 17, 2017, Letter responding to FWS' request, indicating that EPA would provide the requested use/usage data in approximately 6 months
- <!--[if !supportLists]--><!--[endif]-->December 15, 2017, Letter from FWS acknowledging EPA's November 17, 2017, letter
- <!--[if !supportLists]--><!--[endif]-->December 17, 2017, Letter from correcting an effort in their December 15, 2017, letter

Here is the schedule that we have developed for providing the use/usage data to the Services. We can produce this information on this schedule without significantly impacting BEAD's support for ongoing registration and registration review activities.

- <!--[if !supportLists]--><!--[endif]-->Diazinon: Complete; provided in Fall 2017
- <!--[if !supportLists]--><!--[endif]-->Methomyl: To be completed January 31, 2018 (needed for use in draft BE that will pilot the "strawman" revised methods)
- <!--[if !supportLists]--><!--[endif]-->Carbaryl: To be completed February 28, 2018 ((needed for use in draft BE that will pilot the "strawman" revised methods)
- <!--[if !supportLists]--><!--[endif]-->Chlorpyrifos: To be completed April 30, 2018
 <!--[if !supportLists]--><!--[endif]-->Malathion: To be completed May 31, 2018

Please let me know if you have any questions. --Rick

Rick Keigwin
Director, Office of Pesticide Programs
US Environmental Protection Agency



United States Department of the Interior

FISH AND WILDLIFE SERVICE



DEC 1 5 2017

Marietta Echeverria
Director, Environmental Fate and Effects Division
Office of Pesticide Programs
Division Mail Code 7507P
U.S. Environmental Protection Agency
1200 Pennsylvania Ave. NW
Washington, D.C. 20460

Dear Ms. Echeverria:

Thank you for your prompt response letter of November 17, 2017, agreeing to provide additional information necessary to complete formal consultation under section 7(a)(2) of the Endangered Species Act of 1973, as amended (Act), on the U.S. Environmental Protection Agency's (EPA) reregistration of chlorpyrifos, malathion, and diazinon under the Federal Insecticide, Fungicide, and Rodenticide Act. In response, and to ensure that both agencies are clear on the proposed next steps for the above-referenced national pesticide consultations, the U.S. Fish and Wildlife Service (FWS) has the following clarifications and requests:

- (1) Your letter stated that any agreement to provide additional information in the course of the existing interagency consultation regarding pesticide use and usage should not be viewed as agreement to "either revise or withdraw (the) final BEs." For the purpose of our consultation record, we will consider any additional information on use or usage that serves to inform the description of the action area or the effects analysis to supplement the final BEs.
- (2) We request that EPA continue to engage collaboratively with the Service as you compile and summarize label information and usage data so that it is provided in a form that best informs the consultations and so that we can understand the source and utility of the information.
- (3) In the last paragraph of your response letter, you agreed that consultation should be extended and state "...that any required consent from any applicants be obtained." We are not aware of EPA designating any other parties as applicants for the purpose of these consultations. As you know, the term "[a]pplicant" refers to any person, as defined in section 3(13) of the Act, who requires formal approval or authorization from a Federal agency as a prerequisite to conducting the action (50 CFR 402.02). Please identify who EPA now considers to be applicants for these consultations (including providing contact information).

If you have any questions or concerns about this response or the consultation process in general, please feel free to call me at 202-208-4646.

Sincerely,

Gary Frazër

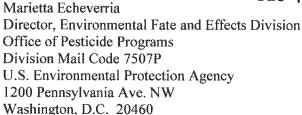
Assistant Director - Ecological Services



United States Department of the Interior

FISH AND WILDLIFE SERVICE





Dear Ms. Echeverria:

This letter supersedes my December 15, 2017, letter to you on this topic, as that letter contained an inadvertent error.

Thank you for your prompt response letter of November 17, 2017, agreeing to provide additional information necessary to complete formal consultation under section 7(a)(2) of the Endangered Species Act of 1973, as amended (Act), on the U.S. Environmental Protection Agency's (EPA) reregistration of chlorpyrifos, malathion, and diazinon under the Federal Insecticide, Fungicide, and Rodenticide Act. In response, and to ensure that both agencies are clear on the proposed next steps for the above-referenced national pesticide consultations, the U.S. Fish and Wildlife Service (FWS) has the following clarifications and requests:

- (1) Your letter stated that any agreement to provide additional information in the course of the existing interagency consultation regarding pesticide use and usage should not be viewed as agreement to "either revise or withdraw (the) final BEs." For the purpose of our consultation record, we will consider any additional information on use or usage that serves to inform the description of the action area or the effects analysis to supplement the final BEs.
- (2) We request that EPA continue to engage collaboratively with the Service as you compile and summarize label information and usage data so that it is provided in a form that best informs the consultations and so that we can understand the source and utility of the information.
- (3) In the last paragraph of your response letter, you agreed that consultation should be extended and state "...that any required consent from any applicants be obtained." As you know, the term "[a]pplicant" refers to any person, as defined in section 3(13) of the Act, who requires formal approval or authorization from a Federal agency as a prerequisite to conducting the action (50 CFR 402.02). Please identify who EPA now considers to be applicants for these consultations (including providing contact information).

If you have any questions or concerns about this response or the consultation process in general, please feel free to call me at 202-208-4646.

Sincerely,

Gary Frazer

Assistant Director- Ecological Services



United States Department of the Interior

FISH AND WILDLIFE SERVICE



NOV 1 4 2017

Marietta Echeverria
Director, Environmental Fate and Effects Division
Office of Pesticide Programs
Division Mail Code 7507P
U.S. Environmental Protection Agency
1200 Pennsylvania Ave. NW
Washington, D.C. 20460

Dear Ms. Echeverria,

On January 18, 2017, the U.S. Fish and Wildlife Service (Service) received the Environmental Protection Agency's (EPA) draft Biological Evaluations (BEs) on the effects of reregistering chlorpyrifos, malathion, and diazinon under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and request to initiate formal consultation under section 7 of the Endangered Species Act of 1973, as amended (ESA). As you are aware, this effort was one of the most complex section 7 consultations ever attempted. While we appreciate the collaboration with the Service and others that informed the development of these BEs, after further review and lessons learned in consideration of the BEs the Service is requesting additional information necessary to complete formal consultation. (See interagency consultation regulations at 50 CFR §402.14). Specifically, we request:

- A revised effects analysis for each chemical that reflects the best scientific and commercial data that is currently available or which can be obtained during the consultation the standard for information required under 50 CFR §402.14(d) for an action agency when seeking formal consultation regarding actual use, including extrapolation to areas where actual use data does not exist or cannot be obtained. The revised effect analyses should also seek to predict effects from future usage that is reasonably certain to occur during the time period of the label authorization but is not reflected in current actual use data.
- A revised effects analysis for each chemical that eliminates from analysis geographic areas identified by EPA where these pesticides are not used and where such use is not likely during the time period of the label authorization, or where listed species or designated critical habitats would not otherwise be exposed to use of the pesticide (e.g., certain states, high elevation areas, uninhabited islands).

In addition, the Service also suggests that the EPA monitor available use and usage information to determine if the manner of actual use remains consistent with assumptions of use and usage considered in the consultation process.

Under the regulations, indirect effects are "those that are caused by the proposed action and are later in time, but are reasonably certain to occur." 50 C.F.R. 402.02. The effects analysis determines the action area, which is "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." 50 C.F.R. 402.02. We must keep in mind the ESA regulations when considering the action description and effects analysis.

In the course of developing the draft and final biological opinions and associated incidental take statements, the Service requests that EPA facilitate coordination with the registrants and user groups to develop, if necessary, any reasonable and prudent alternatives to avoid violation of section 7(a)(2) of the Act and any reasonable and prudent measures necessary or appropriate to minimize the impact of your action on listed species.

This letter also serves as a request to extend the consultation, in accordance with 50 C.F.R. 402.14(e). Upon receipt of the above requested information, the Service will work with EPA to establish a schedule to complete consultation on the proposed actions.

If you have any questions or concerns about this request or the consultation process in general, please feel free to call me at 202-208-4646 or Deputy Assistant Director Gina Shultz at 703-358-1985.

Sincerely,

Gary Frazer

Assistant Director - Ecological Services



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

NOV 1 7 2017

OFFICE OF CHEMICAL SAFETY AND POLLUTION PREVENTION

Mr. Gary Frazer
Assistant Director
U.S. Fish and Wildlife Service
Ecological Services
5275 Leesburg Pike
Falls Church, VA 22041-3803

Dear Mr. Frazer,

Thank you for your letter requesting additional information to complete formal consultation on the Biological Evaluations (BEs) for chlorpyrifos, malathion, and diazinon, which were finalized on January 18, 2017.

As you are aware, the BEs were developed with Services oversight and included all information and analyses as requested by the National Marine Fisheries Service (NMFS) and Fish and Wildlife Service (FWS) during their development. We understand, however, that in the course of our consultation, FWS has indicated that additional information regarding use and usage information could be of value in the development of the FWS biological opinions (BiOps). We will treat your letter as a request for additional information as described in section 402.14(f) of the FWS regulations and not a request to revise the EPA BEs with additional information under section 402.46(b). This is consistent with the regulations that require requests from FWS for additional information to be submitted within 45 days of EPA providing the BE to FWS (50 CFR Part 402). Accordingly, any agreement from EPA to supplement the consultation should not be viewed as EPA's agreement to either revise or withdraw its final BEs.

We are pleased that the utility of the use and usage information is being reconsidered, and we anticipate being able to provide this information within approximately 6 months. Use information (e.g., maximum application rate, number of allowed applications, etc.) is extracted directly from product labels whereas usage information describes where, when, and how a pesticide is actually being used based on survey information. In order to provide the requested use and usage information, staff from EPA's Biological and Economic Analysis Division (BEAD) must compile and summarize label information, appropriately aggregate complex use directions, and develop associated usage statistics. The number of registered use sites for these active ingredients is extensive with more than 100 active registered products for

chlorpyrifos and diazinon. Additionally, this work would need to be completed concurrently with BEAD's existing workload to provide use and usage information supporting EPA's registration review program.

Your letter also requests to extend the consultation in accordance with 50 C.F.R.402.14(e). We agree that consultation should continue and be extended as necessary, and that any required consent from any applicants be obtained.

Sincerely,

For Marietta Echeverria

Director, Environmental Fate and Effects Division

Office of Pesticide Programs

Bin JAnderson

From: Sims, Diann [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP

(FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=7CA5706C9DA345C5AF43F0899CF3A8DF-DIANN SIMS]

Sent: 8/23/2018 5:26:37 PM

To: Atwood, Donald [Atwood.Donald@epa.gov]

Subject: RE: Malathion revised SUUM.Final 082318 (ds).docx

Looks good.

From: Atwood, Donald

Sent: Thursday, August 23, 2018 1:25 PM **To:** Sims, Diann <Sims.Diann@epa.gov>

Subject: RE: Malathion revised SUUM.Final 082318 (ds).docx

Diann, I changed the text some more after seeing your comments. See if you are okay with the following:

Ex. 5 Deliberative Process (DP)

Don Atwood, Ph.D. - Entomologist US Environmental Protection Agency Office of Chemical Safety & Pollution Prevention Office of Pesticide Programs Biological and Economic Analysis Division Science Information and Analysis Branch

(703) 308-8088 atwood.donald@epa.gov

From: Sims, Diann

Sent: Thursday, August 23, 2018 12:41 PM **To:** Atwood, Donald < <u>Atwood.Donald@epa.gov</u>>

Subject: Malathion revised SUUM. Final 082318 (ds). docx

Don,

See attached. Go ahead and prep package with e-signature. Add the excel files for EFED so we can deliver as one package.

Thanks

From: Sims, Diann [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP

(FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=7CA5706C9DA345C5AF43F0899CF3A8DF-DIANN SIMS]

Sent: 9/26/2018 8:57:55 PM

To: Suarez, Mark [Suarez.Mark@epa.gov]

Subject: RE: ESA meeting

From: Suarez, Mark

Sent: Wednesday, September 26, 2018 3:59 PM

To: Sims, Diann <Sims.Diann@epa.gov>

Subject: ESA meeting

Diann,

Ex. 5 Deliberative Process (DP)

Regards, Mark

Mark Suarez Entomologist Science Information and Analysis Branch Biological and Economic Analysis Division US EPA (Mail Code 7503P) 1200 Pennsylvania Avenue, NW Washington, DC 20460

phone: 703-305-0120

From: Sims, Diann [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP

(FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=7CA5706C9DA345C5AF43F0899CF3A8DF-DIANN SIMS]

Sent: 2/27/2018 12:51:54 PM

To: Atwood, Donald [Atwood.Donald@epa.gov]

Subject: Re: Malathion

Ex. 5 Deliberative Process (DP)

Sent from my iPhone

> On Feb 27, 2018, at 7:22 AM, Atwood, Donald <Atwood.Donald@epa.gov> wrote:

Ex. 5 Deliberative Process (DP)

```
> Don Atwood, Ph.D. - Entomologist
> US Environmental Protection Agency
> Office of Chemical Safety & Pollution Prevention
> Office of Pesticide Programs
> Biological and Economic Analysis Division
> Science Information and Analysis Branch
> (703) 308-8088
> atwood.donald@epa.gov
> ----Original Message----
> From: Sims, Diann
> Sent: Monday, February 26, 2018 5:32 PM
> To: Atwood, Donald <Atwood.Donald@epa.gov>
> Subject: Re: Malathion
```

Ex. 5 Deliberative Process (DP)

Sent from my iPhone

>> On Feb 26, 2018, at 2:28 PM, Atwood, Donald <Atwood.Donald@epa.gov> wrote:

Ex. 5 Deliberative Process (DP)

```
>> Don Atwood, Ph.D. - Entomologist
>> US Environmental Protection Agency
>> Office of Chemical Safety & Pollution Prevention Office of Pesticide
>> Programs Biological and Economic Analysis Division Science Information
>> and Analysis Branch
>>
>> (703) 308-8088
>> atwood.donald@epa.gov
>>
>> ----Original Message----
>> From: Sims, Diann
>> Sent: Monday, February 26, 2018 2:18 PM
>> To: Atwood, Donald <Atwood.Donald@epa.gov>
>> Subject: Malathion
```

Ex. 5 Deliberative Process (DP)

>> Sent from my iPhone

From: Sims, Diann [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP

(FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=7CA5706C9DA345C5AF43F0899CF3A8DF-DIANN SIMS]

Sent: 2/8/2018 8:57:31 PM

To: Corbin, Mark [Corbin.Mark@epa.gov]

Subject: RE: Usage data and PCT

Ex. 5 Deliberative Process (DP)

----Original Message----

From: Corbin, Mark

Sent: Thursday, February 8, 2018 3:57 PM To: Sims, Diann <Sims.Diann@epa.gov> Subject: Re: Usage data and PCT

Will do

Thx

Sent from my iPhone

> On Feb 8, 2018, at 3:52 PM, Sims, Diann <Sims.Diann@epa.gov> wrote:

Ex. 5 Deliberative Process (DP)

> ----Original Message-----

> From: Corbin, Mark

> Sent: Thursday, February 8, 2018 3:24 PM
> To: Sims, Diann <Sims.Diann@epa.gov>

> Subject: Usage data and PCT

Ex. 5 Deliberative Process (DP)

> Sent from my iPhone

From: Sims, Diann [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP

(FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=7CA5706C9DA345C5AF43F0899CF3A8DF-DIANN SIMS]

Sent: 1/24/2018 5:40:46 PM

To: Pease, Anita [Pease.Anita@epa.gov]
Subject: RE: ESA Usage Data Deliverables Table

Thanks Anita,

I spoke with Brian earlier and we will adjust our delivery schedule a bit to give EFED a bit more lead time. Nice tag line below, btw ©

From: Pease, Anita

Sent: Wednesday, January 24, 2018 12:39 PM **To:** Sims, Diann <Sims.Diann@epa.gov>

Cc: Miller, Wynne < Miller. Wynne@epa.gov>; Anderson, Brian < Anderson. Brian@epa.gov>

Subject: RE: ESA Usage Data Deliverables Table

Hi Diane. Sounds like we are on the same page. FYI - I just read the following in the OPP General notes (meeting between Rick and Nancy) so you might want to check in w Brian re: clarification of the highlighted sentence given that a request for the Services to prioritize the use/useage data would certainly have implications on our proposed schedule. Also, I would make sure that folks understand that BEAD's proposed schedule assumes that the scope of the use/useage data for the other 4 chemicals is similar to what we provided for diazinon, especially as we meet and continue to have conversations w FWS re: the use/useage data.

Regarding next steps on the continued collaboration with NMFS and FWS, how to incorporate use and usage data into the assessments has been an area of continued disagreement between EPA and the Services. EPA has provided NMFS and FWS with refined diazinon usage data per crop including typical use rates, average annual total pounds of diazinon applied, minimum and maximum percent crop treated, and geographic breakdowns of diazinon use. Refined usage information is currently being generated for the four additional chemicals (chlorpyrifos, malathion, carbaryl, and methomyl). Nancy asked for a status update on the use and usage data and Rick reported that BEAD is currently compiling the data. Nancy would like OPP to reach out to the Services to ask about prioritizing the data. Subsequent to the OPP General, Rick sent a schedule to Nancy as well as copies of the correspondence between FWS and EPA regarding the commitment to provide this information within approximately 6 months.

Thanks,

Anita Pease
Acting Director
Antimicrobials Division (AD)
Office of Pesticide Programs
U.S. Environmental Protection Agency

703-305-0392 pease.anita@epa.gov From: Sims, Diann

Sent: Wednesday, January 24, 2018 11:09 AM **To:** Pease, Anita < Pease, Anita@epa.gov>

Subject: FW: ESA Usage Data Deliverables Table

Hi Anita,

Hope all is well in AD. Wynne brought to my attention that Rick is using the dates below in his correspondence concerning the completion of the B.E.s. I want to make sure that there is no miscommunication on our part.

We do plan to deliver the methomyl to EFED on schedule (a bit of a push as we don't actually go to PRP until Jan 31^{st} ; I don't anticipate major changes as we have already met with EFED on the draft. Let me know if we need to offer further clarifications.

From: Sims, Diann

Sent: Tuesday, December 5, 2017 5:34 PM **To:** Pease, Anita@epa.gov>

Cc: Paisley-Jones, Claire <Paisley-Jones.Claire@epa.gov>; Atwood, Donald <Atwood.Donald@epa.gov>; Miller, Wynne

<Miller.Wynne@epa.gov>

Subject: ESA Usage Data Deliverables Table

Anita,

Here is a table with our planned milestones for completed the usage data for the Services. We plan to update this table periodically. Let me know if you have questions or suggestions.

Chemical	Analyst	Status	Delivery Goals
Methomyl	Atwood	In Progress	Interim to EFED – December 12
			PRP – 1 st week of January
			Final – January 31, 2018
Carbaryl	Paisley-Jones	In Progress	Interim to EFED – end of December
			PRP – 2 nd week of January
			Final – Feb 28, 2018
Chlorpyrifos	Paisley-Jones	Pending	Interim to EFED — Early February
			PRP – Mid March
			Final – April 30, 2018
Malathion	Atwood	Pending	Interim to EFED - late Feb - early
			March
			PRP – Early April
			Final – May 31, 2018

From: Sims, Diann [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP

(FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=7CA5706C9DA345C5AF43F0899CF3A8DF-DIANN SIMS]

Sent: 1/24/2018 4:03:22 PM

To: Miller, Wynne [Miller.Wynne@epa.gov]

Subject: RE: OPP General Follow-up: Timeline for Providing Additional Use and Usage Data to Support ESA Pesticide

Consultations

Wynne,

We had planned for PRP this week, but Don got the flu. Those are the dates we gave for delivery of our reports, not the dates of the BE to the services. I'll touch base with Brian and Anita. Will get back to you shortly.

From: Miller, Wynne

Sent: Wednesday, January 24, 2018 10:56 AM **To:** Sims, Diann <Sims.Diann@epa.gov>

Subject: Re: OPP General Follow-up: Timeline for Providing Additional Use and Usage Data to Support ESA Pesticide

Consultations

Thanks Diann. So if methomyl goes to PRP next week and Jan 31 is next Wednesday - will we make the Jan 31 delivery date? Rick's note indicates that this is the delivery date to the services.

Sent from my iPhone

On Jan 24, 2018, at 10:50 AM, Sims, Diann < Sims. Diann@epa.gov > wrote:

Hi Wynne,

We are on track. Methomyl goes to PRP next week and Carbaryl is with EFED for interim comments. Work has started on malathion.

From: Miller, Wynne

Sent: Wednesday, January 24, 2018 10:34 AM

To: Sims, Diann <Sims.Diann@epa.gov>

Subject: Fwd: OPP General Follow-up: Timeline for Providing Additional Use and Usage Data to Support

ESA Pesticide Consultations

Hi Diann,

Please see the timeline for our stuff. Are we still on track to meet? We can't miss these.

Thx Wynne

Sent from my iPhone

Begin forwarded message:

From: "Keigwin, Richard" < Keigwin. Richard@epa.gov >

Date: January 24, 2018 at 9:18:25 AM EST

To: "Bertrand, Charlotte" <Bertrand.Charlotte@epa.gov>, "Beck, Nancy"

<a href="mailto:Beck.Nancy@epa.gov">Beck.Nancy@epa.gov, "Wise, Louise@epa.govLouise@epa.gov>
Cc: "Keller, Kaitlin" keiler.kaitlin@epa.gov>, "Dinkins, Darlene"

<Dinkins.Darlene@epa.gov>, "Echeverria, Marietta" <Echeverria.Marietta@epa.gov>,

"Miller, Wynne" < Willer. Wynne@epa.gov>

Subject: FW: OPP General Follow-up: Timeline for Providing Additional Use and Usage Data to Support ESA Pesticide Consultations

A couple of other points:

- The types of use/usage data we will be developing include: pounds a.i. applied, number of acres treated, and percent crop treated for labeled agricultural crops at the national and state levels, as data allow. Limited information is available for non-agricultural use sites are being collected, as data sources allow.
- We expect to have draft BEs for carbaryl and methomyl utilizing the proposed/updated methodologies (aka, the "strawman") by the end of September 2018. We will need to talk about how to include some external engagement subsequent to September 2018, understanding that the Services are under settlements to have the BiOps for these two chemicals completed by the end of 2018.

From: Keigwin, Richard

Sent: Wednesday, January 24, 2018 7:36 AM

To: Bertrand, Charlotte Beck, Nancy

<beck.nancy@epa.gov>; Louise Wise (Wise.Louise@epa.gov) <Wise.Louise@epa.gov>

Cc: Keller, Kaitlin < keller.kaitlin@epa.gov>; Darlene Dinkins (Dinkins.Darlene@epa.gov)

<<u>Dinkins.Darlene@epa.gov</u>>; Marietta Echeverria (<u>Echeverria.Marietta@epa.gov</u>)

<<u>Echeverria.Marietta@epa.gov</u>>; Wynne Miller <<u>Miller.Wynne@epa.gov</u>>

Subject: OPP General Follow-up: Timeline for Providing Additional Use and Usage Data to Support ESA Pesticide Consultations

As a follow-up to yesterday's OPP General, I am attaching the following:

- November 14, 2017, Letter from FWS requesting additional data to support the ongoing consultation for chlorpyrifos, diazinon, and malathion
- November 17, 2017, Letter responding to FWS' request, indicating that EPA would provide the requested use/usage data in approximately 6 months
- December 15, 2017, Letter from FWS acknowledging EPA's November 17, 2017, letter
- December 17, 2017, Letter from correcting an effort in their December 15, 2017, letter

Here is the schedule that we have developed for providing the use/usage data to the Services. We can produce this information on this schedule without significantly impacting BEAD's support for ongoing registration and registration review activities.

• Diazinon: Complete; provided in Fall 2017

 Methomyl: To be completed January 31, 2018 (needed for use in draft BE that will pilot the "strawman" revised methods)

• Carbaryl: To be completed February 28, 2018 ((needed for use in draft BE that will pilot the "strawman" revised methods)

Chlorpyrifos: To be completed April 30, 2018
 Malathion: To be completed May 31, 2018

Please let me know if you have any questions.

--Rick

Rick Keigwin Director, Office of Pesticide Programs US Environmental Protection Agency From: Sims, Diann [Sims.Diann@epa.gov]

Sent: 2/15/2018 1:45:00 PM

From: Sims, Diann [Sims.Diann@epa.gov]

Sent: 2/15/2018 11:30:00 AM

```
<?xml version="1.0"?>
<CalendarNotificationContent xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" Version="1.0">
  <CalNotifType>Summary</CalNotifType>
  <CalNotifTypeDesc>Agenda</CalNotifTypeDesc>
    <DayOfWeekOfStartTime>Thursday/DayOfWeekOfStartTime>
    <DateOfStartTime>2/15</DateOfStartTime>
    <TimeOfStartTime />
    <DayOfWeekOfEndTime>Friday</DayOfWeekOfEndTime>
    <DateOfEndTime>2/16</DateOfEndTime>
    <TimeOfEndTime>0:00</TimeOfEndTime>
    <Subject>Don in Training at USDA</Subject>
    <Location />
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Paisley-Jones, Claire [paisley-jones.claire@epa.gov] From: Sent: 5/5/2020 5:11:22 PM To: Paisley-Jones, Claire [Paisley-Jones.Claire@epa.gov]; Suarez, Mark [Suarez.Mark@epa.gov] Subject: Conversation with Paisley-Jones, Claire Suarez, Mark 1:07 PM: Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Message	
From:	Suarez, Mark [suarez.mark@epa.gov]

To: Paisley-Jones, Claire [Paisley-Jones.Claire@epa.gov]; Suarez, Mark [Suarez.Mark@epa.gov]

Subject: Conversation with Paisley-Jones, Claire

5/5/2020 5:10:52 PM

Sent:

Suarez, Mark 1:07 PM:
Ex. 5 Deliberative Process (DP)

From: Kiely, Timothy [Kiely.Timothy@epa.gov]

Sent: 6/11/2020 3:47:20 PM

To: Suarez, Mark [Suarez.Mark@epa.gov]; Wyatt, TJ [Wyatt.Tj@epa.gov]

Subject: RE: topic for Reg Review coordination

Great. I will add it to the agenda. Thank you.

Tim

From: Suarez, Mark <Suarez.Mark@epa.gov> Sent: Thursday, June 11, 2020 11:41 AM

To: Wyatt, TJ < Wyatt. Tj@epa.gov>; Kiely, Timothy < Kiely. Timothy@epa.gov>

Subject: RE: topic for Reg Review coordination

That works for me, as well.

We have discussed this within SIAB and I am preparing some additional draft guidance.

I'll pull that together for discussion at the Tuesday meeting.

From: Wyatt, TJ < Wyatt.Tj@epa.gov>
Sent: Thursday, June 11, 2020 11:33 AM

To: Kiely, Timothy < <u>Kiely.Timothy@epa.gov</u>>; Suarez, Mark < <u>Suarez.Mark@epa.gov</u>>

Subject: RE: topic for Reg Review coordination

It is for me.

From: Kiely, Timothy < Kiely. Timothy@epa.gov>
Sent: Thursday, June 11, 2020 11:31 AM

To: Wyatt, TJ < Wyatt. Tj@epa.gov>; Suarez, Mark < Suarez. Mark@epa.gov>

Subject: RE: topic for Reg Review coordination

Thank you. Is next week okay to discuss?

From: Wyatt, TJ < <u>Wyatt.Ti@epa.gov</u>>
Sent: Thursday, June 11, 2020 11:28 AM

To: Kiely, Timothy < Kiely, Timothy@epa.gov>; Suarez, Mark < Suarez, Mark@epa.gov>

Subject: topic for Reg Review coordination

Hi, Tim and Mark. Actually, this topic is more than just Reg Review.

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Thanks!

From: Crowley, Matthew [Crowley.Matthew@epa.gov]

Sent: 6/9/2020 7:15:55 PM

To: Suarez, Mark [Suarez.Mark@epa.gov]

Subject: RE: 2.5% & ESA info

This looks fine to me, particularly since there seems to be a tight timeframe. Please respond to both Kimberly and Monisha for each of their questions about the 2.5%.

Matthew Crowley, Acting Branch Chief Science Information and Analysis Branch (SIAB) EPA/OCSPP/OPP/BEAD 703-305-7606

From: Suarez, Mark <Suarez.Mark@epa.gov>

Sent: Tuesday, June 9, 2020 9:07 AM

To: Crowley, Matthew < Crowley. Matthew@epa.gov>

Subject: RE: 2.5% & ESA info

Matt,

Here's the rationale.

The pesticide usage data available are based on surveys of growers and/or other user groups. These surveys are designed to be statistically robust, but by definition sample the target populations rather than provide a complete accounting of all pesticide usage. Therefore, while "no usage reported" is generally a good indicator of limited usage of an active ingredient in a crop and in the defined geographic area, it should not be confused with "no or zero usage" of a pesticide for the crop in the surveyed area(s) during the period surveyed. In addition to the potential for rare or uncommon events to go undetected in the survey, the data are not being considered for their historical value. The historical usage data are being used to forecast future usage, which has some uncertainty. While some uncertainty exists, historical pesticide usage is the best available indicator of future pesticide usage.

Percent crop treated (PCT) estimates have a longstanding history of use in dietary risk assessments. SIAB has historically recommended that a default baseline value be used when no usage was reported or usage was very low for dietary risk assessment. The 2.5 PCT value has been recommended for use in dietary risk assessments for the acute dietary when a maximum PCT of <2.5 was reported.

Mark

From: Crowley, Matthew < Crowley. Matthew@epa.gov>

Sent: Tuesday, June 09, 2020 6:51 AM
To: Suarez, Mark <Suarez.Mark@epa.gov>

Subject: RE: 2.5% & ESA info

Hi Mark,

I talked through these with Kimberly and Neil during my general.

The only issue of immediate concern, as noted in another set of emails, is the 2.5%. Can you craft a few sentences about it? From the perspective of "why we shouldn't use zero" is a better perspective than "why 2.5% is a good number" though for sure bring in the history/SLUA note.

Matthew Crowley, Acting Branch Chief Science Information and Analysis Branch (SIAB)

EPA/OCSPP/OPP/BEAD 703-305-7606

From: Nesci, Kimberly < Nesci.Kimberly@epa.gov>

Sent: Thursday, June 4, 2020 3:36 PM

To: Suarez, Mark < Suarez. Mark@epa.gov>; Crowley, Matthew < Crowley. Matthew@epa.gov>

Cc: Anderson, Neil < Anderson. Neil@epa.gov>

Subject: 2.5% & ESA info

A couple of updates from our general with EFED:

2.5% I spoke to EFED mgmt about the 2.5 percent during my general (Marietta, Jan and Brian) and I think they need something in writing from us on the 2.5% recommendation. Can you send an email? Email is good enough.

<u>Analysis of Usage Data</u> - Also, they are ok with putting out our draft analysis for comment at the same time that the BEs go out in draft for comment. That said, they need to incorporate any changes as a result of the analysis (and public comment) into the final BEs, which are due April 2020. So, make sure to find out when EFED needs our final version of the analysis and our recommendations to them in order for them to meet the April deadline for the FINAL BEs, and make sure that's doable in accordance with the existing schedule.

<u>Step 0 & CLA comments (sub county):</u> Marietta and Rick are meeting with CLA tomorrow; step 0 may come up. I'll let you know the outcome. I understand from Brian A that the team is going to be meeting to discuss the response to comments shortly. The review of the step 0 and CLA docs should be part of that. Also, it appears that the Step 0 proposal relies on the sub-county approach.

<u>SETAC</u> - EFED submitted a very general abstract to SETAC for that session; they'll be sharing with us. If there's an opportunity for us to present (virtually or otherwise), we should do that.

<u>EMPM</u> – Similarly, EMPM will be an opportunity for us to discuss the PCA/PCT and involvement in DW projects. I'll get you that information when it goes out, too.

Talk more shortly – wanted to download before this leaves my head. Thanks!

Kimberly Nesci, Acting Director Biological and Economic Analysis Division (BEAD) Office of Pesticide Programs Office of Chemical Safety and Pollution Prevention 703-969-9109 (cell)

From: Nesci, Kimberly [Nesci.Kimberly@epa.gov]

Sent: 2/28/2020 8:46:09 PM

To: Suarez, Mark [Suarez.Mark@epa.gov]

Subject: FW: Comment Letter Integrating a Distributional Approach to Using Percent Crop Area (PCA) and Percent Crop

Treated (PCT) into Drinking Water Assessments

Attachments: Xerces-CBD comment letter Pesticide Concentrations in Surface Waters final.pdf

From: Echeverria, Marietta < Echeverria. Marietta @epa.gov>

Sent: Thursday, February 27, 2020 5:07 PM **To:** Nesci, Kimberly < Nesci.Kimberly@epa.gov>

Subject: FW: Comment Letter Integrating a Distributional Approach to Using Percent Crop Area (PCA) and Percent Crop

Treated (PCT) into Drinking Water Assessments

From: oppeco <oppeco@epa.gov>

Sent: Thursday, February 27, 2020 4:11 PM

To: Echeverria, Marietta < Echeverria. Marietta@epa.gov>; Anderson, Brian < Anderson. Brian@epa.gov>

Subject: FW: Comment Letter Integrating a Distributional Approach to Using Percent Crop Area (PCA) and Percent Crop

Treated (PCT) into Drinking Water Assessments

I already sent these to Elyssa and Mark. These comments are from Center for Biological Diversity and are critical of PCA

and PCT. I glance at

Ex. 5 Deliberative Process (DP)

From: Sharon Selvaggio <sharon.selvaggio@xerces.org>

Sent: Thursday, February 27, 2020 10:51 AM

To: oppeco < oppeco@epa.gov >

Subject: Comment Letter Integrating a Distributional Approach to Using Percent Crop Area (PCA) and Percent Crop

Treated (PCT) into Drinking Water Assessments

Please accept the attached comment letter on the subject proposal.

Thank you.

--

Sharon Selvaggio, Pesticide Program Specialist

sharon.selvaggio@xerces.org, cell: (503) 704-0327

Main Office (Portland, OR): <u>855-232-6639</u>

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Office of Pesticide Programs 1200 Pennsylvania Avenue NW. Washington, DC 20460-0001 OPPeco@epa.gov.

February 26, 2020

For Open Comment Period New Methodologies to Estimate Pesticide Concentrations in Surface Waters

Dear Office of Pesticide Programs,

We appreciate the opportunity to comment on EPA's proposed drinking water assessment methods (Integrating a Distributional Approach to Using Percent Crop Area (PCA) and Percent Crop Treated (PCT) into Drinking Water Assessments) hereafter described as "White Paper."

These comments are submitted by The Xerces Society together with the Center for Biological Diversity. The Xerces Society for Invertebrate Conservation (Xerces Society) is an international nonprofit organization that protects the natural world through the conservation of invertebrates and their habitats. We work to raise awareness about the plight of invertebrates and to gain protection for the most vulnerable species before they decline to a level at which recovery is impossible. Pesticide use is one of the contributing factors to the loss of many invertebrate species. The use of pesticides can also hinder recovery efforts for imperiled species.

We are commenting on these drinking water assessment (DWA) methods because risk assessments and decisions that affect drinking water for people also affect aquatic ecosystems and the numerous species dependent on aquatic systems. Clean water is vital for all life on earth, and maintaining clean water is a critical part of EPA's mission.

Background

EPA frames the new policy by describing the historical practice for both Percent Cropped Area (PCA) and Percent Crop Treated (PCT):

- The application of PCAs to DWAs has been extensively documented, reviewed, and utilized in OPP drinking water assessments (USEPA, 2014). (p. 6)
- While OPP does incorporate some usage data into high-tier assessments (e.g., average use rates, typical application dates), PCT has not historically been used in the standard tiered DWA process. EPA is proposing to use it now with this peer review. (p. 9)

EPA also outlines the goals of this new policy and describes it as a new policy specifically for Tier 3 Drinking Water Assessments:

- The goal of the PCA and PCT refinements are to generate EDWCs [Estimated Drinking Water Concentrations] that are protective of human health that reduce the magnitude of overestimation due to variability in crop acreage and actual pesticide usage. (p. 5)
- OPP plans to incorporate the PCA and PCT refinements discussed in this paper to pesticides that present potential human health risks after incorporating refinements such as crop- and region-specific modeling scenarios, average pesticide use rates, and national- and regional-scale PCA adjustments.... As applicable, OPP plans to incorporate the distributional PCA method presented in this paper into Tier 3 analysis. The proposed approach to use the full suite of CWS PCA values builds on OPP's current surface water modeling approach. Unlike the existing approach which uses a maximum PCA either nationally or by HUC-2 watershed, the proposed approach will use the unique PCA values for all 4800+ CWS watersheds." P. 25

General Comments:

This proposal raises the questions of why usage data, specifically PCT, has not historically been used in the standard DWA tiered process, and whether proposing to use it now represents a step forward for public health. Unfortunately, EPA does not present its reasoning, simply assuring the public that including PCA and PCT will result in drinking water assessments that are "more realistic." However, we believe that these proposed "refinements" to DWAs are built on incomplete data and faulty assumptions about pesticide use in cropped and non-cropped areas. Clearly, taken as a whole, the policy is aimed at designing a Tier 3 analysis process that allows the EPA to reduce its calculated estimate of pesticide concentrations in water, so that fewer watersheds show estimated concentrations above levels of concern. While it is not inappropriate to incorporate more refined data during higher tier analyses to better estimate risk, EPA's method as described in the White Paper will rely on data that is itself incomplete and/or ill-suited for watershed level analyses.

We oppose this, because it undermines both sound science and the precautionary principle. In addition, clean, pure drinking water is a basic human right. On July 28, 2010, the United Nations General Assembly, through Resolution 64/292, explicitly recognized the human right to water and sanitation and acknowledged that clean drinking water and sanitation are essential to the realization of all human rights. The American public expects EPA to ensure that their drinking water will not compromise public health.

Backup validation measures also do not inspire confidence. EPA states that it will use available surface water data to "ground truth" modeled estimates, so as not to underestimate expected exposures. However, many watersheds with drinking water intakes are not currently covered by a robust surface water monitoring program, especially one that reliably tracks pesticide exposure in all seasons and over multiple years. In addition, it is Important to recognize that many common pesticide active ingredients are not included as analytes in surface water monitoring studies, and only a few metabolites are usually included as analytes. Use of sporadic monitoring data to validate modeling methods is inadequate to ensure confidence in EPA's modeling outcomes.

Our comments specific to the PCA and PCT methods and steps are below.

Percent Cropped Area Issues and Comments

In this section, the EPA describes methods to determine the area of the watershed that is potentially subject to applications of the pesticide of interest. On its face, Percent Cropped Area (PCA) appears to make sense, to account for more realistic estimates of potential pesticide exposure in drinking water resulting from cropping and land use patterns in a watershed. However, this measure is faulty, for numerous reasons outlined below.

- 1. Crops are aggregated into large, general "land cover classes." EPA has designated 18 land cover classes, and will use these to pare down the acres of the watershed into those potentially subject to an application. There is a lack of clarity on the labeled application rates that would be chosen for analysis in a DWA. The only reference to application rates in the document appears to be in the above quoted section on p. 25: [OPP plans to incorporate the PCA and PCT refinements discussed in this paper to pesticides that present potential human health risks after incorporating refinements such as crop- and region-specific modeling scenarios, average pesticide use rates]. In order for the Tier 3 analyses to be sufficiently protective of public health, EPA would need to utilize the maximum application rate available for any crop within that class. The maximum label rate should be used in DWA analyses because it is legally permissible. Analyses that rely on "typical" values could be underprotective of public health since they do not account for legally allowed use of pesticides. In cases where maximum use rates on cropped areas lead to drinking water concerns, labeled maximum use rates should be revised.
- 2. The method does not take into account the proximity of pesticide treatments to Drinking Water Intakes (DWI). The closer the treatments to the DWIs, the higher the likely concentrations and the greater the risk for human exposure. Proximity is arguably a more important factor than any other factor presented in the analysis. The method should consider proximity in a more deliberate manner, and should account for rapid runoff due to watershed characteristics (considering perhaps factors such as impervious surfaces, the extent to which a watershed is hydrologically modified, and topographical characteristics). EPA has outlined such characteristics before when discussing the vulnerability of drinking water to contamination; the following quote is from an EPA document describing pesticide monitoring programs for drinking water at

https://archive.epa.gov/scipoly/sap/meetings/web/pdf/drinkingwatersurvey.pdf:

Vulnerability may be described using watershed characteristics, hydrologic characteristics of the surface water body, and proximity of pesticide application area to water source supply.

3. EPA encourages consideration of the timing of a pesticide application in this redesigned process. It is unclear how EPA would determine reliable timing information since pesticide use records are unavailable for most of the country. Moreover, since theoretically a water system would have a constant need for drinking water, it is unclear how concentrations

that may be only episodically at high levels would be any less of a concern by considering timing.

- 4. The process described appears to be highly vulnerable to mistakes or the use of outdated information. For example, accurate crop data is obviously a critical factor used in the analysis. Yet farmer choices of which crops to grow in any year can rapidly change, especially for annual crops. Other conditions such as weather, prices, labor, etc. can affect cropping patterns and are difficult to respond to in modeling based on prior-year analyses.
- 5. It is unclear whether forestry or other "natural area" pesticide applications are counted in the PCA-PCT methodology. They are not mentioned in the PCA-PCT white paper except as non-agricultural uses. Since many of the watersheds supplying community water systems are occupied all or in part by forests, forest-related pesticide applications should be accounted for.

Percent Crop Treated (PCT) Issues and Comments

In the white paper, EPA proposes to use usage data (specifically percent of crop treated data) as described below:

"In this White Paper OPP also proposes the application of PCT data below the default assumption of 100% to the DWA process. Data on PCT of various agricultural crops is supplied by the Biological and Economic Analysis Division (BEAD) based on United States Department of Agriculture (USDA) survey and Kynetec USA (i.e. private market survey data). This data is summarized on a state level. PCT data for non-agricultural uses is typically available on a national or regional basis. A pesticide's usage data are summarized in the Use and Usage Matrix (SUUM) which is provided to the chemical team by BEAD. The pesticide's SUUM reports PCT data based on usage that occurred for a given 5-year range."

The PCT measure is even more concerning than the PCA measure, for the reasons below.

 The basic equation governing calculation of percent crop treated (PCT) clearly incorporates uncertainty in both the numerator and denominator, since reliable data on these measures are not collected in a comprehensive manner.

PCTx = (Base Acres treated w/ Pesticide x / Crop Acres Grown) X 100

2. Available usage data are not demonstrably reliable and under-represent pesticide seed treatments.

To be reliable, usage data must be comprehensive (i.e. required for most or all pesticide applications), reported in a timely manner, supported by realtime records, and publicly available. Usage data used in risk assessment analyses should include important attributes, including date, time, use site (e.g. crop), area treated, amount used (by product) and location (at a meaningful resolution, such as by section, as in the California Pesticide Use Reporting [PUR] system).

In contrast, the usage data that EPA proposes to use are deficient in many respects including:

- The proprietary usage data to be used shall be summarized at a coarse, state-wide scale for agricultural data and national scale for non-agricultural data.
- Several of the data sources are incomplete excluding key crops or use sites, states, and active ingredients.
- Some of the data sources are proprietary and there are restrictions on what can be provided to the public.
- The methodologies for the proprietary sources are undisclosed to the general public.

Usage data for seed treatments may be particularly unreliable. For many years, the US Geological Survey in its National Pesticide Synthesis Project has provided coarse maps that display estimated annual agricultural pesticide use. Yet the USGS prominently highlights at its site the following information:

Beginning 2015, the provider of the surveyed pesticide data used to derive the county-level use estimates discontinued making estimates for seed treatment application of pesticides because of complexity and uncertainty. Pesticide use estimates prior to 2015 include estimates with seed treatment application.

The seed treatment data provider (Kynetec AgroTrack data) is the one of the primary sources that the EPA will also use in this proposed method to adjust pesticide concentration estimates in drinking water. While the NASS Agricultural Chemical Use Program did start surveying for seed treatments in 2015, the survey focuses only on a subset of crops which is rotated by year. It is also not clear if EPA will consider seed treatment as an application that gets quantified and considered in "usage data." Seed treatment represents a large-scale use of pesticides — it is estimated that approximately 90% of all conventional corn seed and up to 44% of soybean seed is treated with neonicotinoids prior to planting (Douglas and Tooker 2015).

Underestimating seed treatment may result in a significant underestimation of usage for the many pesticides that are registered for seed treatments – together with a documented risk for heightened drinking water concentrations. Since seed treatments are commonly applied with active ingredients that tend to be more water-soluble, this may result in a significant undercounting of pesticide exposure through drinking water. Hladik et al. (2018) found that five neonicotinoid insecticides are prevalent year-round in tributaries to the Great Lakes, with detections of clothianidin and thiamethoxam significantly increasing as the percent of cultivated crops in the basins increased. The authors noted that increases in riverine neonicotinoid concentrations occurred very shortly after planting of treated seeds. This linkage of treated seed with elevated aquatic concentrations underscores the need to include accurate estimates of seed treatment in exposure modeling.

The planting of treated seed also results in dust drift which can transport large quantities of pesticide off-field, potentially contaminating drinking water sources. Dust drift is not taken into account using traditional drift models such as AgDrift.

3. Available usage data are not demonstrably reliable and likely under-represent urban/developed usage, which poses unique risks to surface water.

Usage data sources identified by EPA are especially weak for uses that occur in urban and developed sites. Developed areas are uniquely vulnerable to pesticide contamination, where pesticides frequently enter aquatic systems as runoff across impervious surfaces or through "down-the-drain" uses. These contaminations result in frequent detections and high concentrations of active ingredients in urban streams (Stone et al. 2014; Weston 2005; Carpenter 2016).

4. The White Paper states that the PCT data is provided by BEAD, and is compiled and summarized by BEAD based on 5 years of usage data to generate state- and national-level estimates of the maximum, minimum, and average PCT value for a given crop or set of crops.

According to this description, data that is available is not statistically referenced except as maximum, minimum, and average estimates of percent crop treated. Other statistical measures, such as the number of responses per crop type surveyed, are not publicly available. Nor are measures of variability for the dataset, such as the median value, the standard deviation or variance, or even charts of interquartile ranges. In addition, the standard error is an important measure that should be calculated. Concealing or not calculating these statistical measures for public review raises serious concerns about how reliable and predictive the PCT data is. As such, use of such data in drinking water risk assessment is highly problematic.

- 5. EPA appears to group all non-agricultural areas into one land class category despite the fact that they may differ significantly from one another. For example, urban areas are largely impervious, and are associated with urban pesticide uses related to structures and urban landscaping. Until these are separated out, non-agricultural areas should be assigned the most conservative PCT value available to account for the impervious acreage in urban settings i.e. PCT should be assigned as 100% for non-agricultural areas. This is justifiable not only because of the coarse nature of this grouping but because of the inadequacy of the survey data for non-agricultural uses.
- 6. PCT data are only available for specific crops and states (p. 34). To address the large data gaps, EPA proposes to use a surrogacy method (see p. 35). Use of surrogate methods to refine analysis efforts at a higher tier analysis may be acceptable, but only if the method errs on the side of being protective of human health (which is, after all, in the goal statement for this policy). In this case, it is inappropriate to assume that unsurveyed crop/state combinations should be assigned a surrogate value based on a similar crop or nearby location. Instead, EPA should assign the default value of 100% PCT for any unsurveyed crop/state combinations.

The case study seems to imply that EPA will use "typical" values of PCT (rather than the maximum percent crop treated rates reported in the SUMM), when it uses PCT to further analyze higher risk watersheds. First, it is curious that EPA refers to "typical" rather than "average" usage data which is supplied by BEAD. EPA does not explain whether it regards these values as the same or not. Second, "typical" usage data is inadequate to account for changes in pesticide use intensity. Burger et al (2012) showed that pesticide use intensity is significantly connected to crop management, mainly to preceding crop, seeding time and cultivar characteristics. Koleva et al (2009) found that weather and climate differences significantly influence the application rates of most pesticides.

In spring and summer 2019, we saw widespread delays in seeding of crops across the country, but especially in the Midwest due to intense and constant rain and flooding during spring. These are the kinds of events that result in seeding time being off and a higher likelihood of pesticide applications to protect the crop which is developing outside its ideal time. Under anticipated climate change scenarios, weather variability will increase, which may result in wide swings from year to year in the percent crop treated, rendering this kind of analysis imprecise at best. If increases in pesticide use intensity (even if temporary) are obscured, protection of public health could suffer.

7. EPA discusses and acknowledges the limitations of using different distribution methods of state level PCT data to specific watersheds (see p. 26, excerpted below), but does not explain how it will document its choice of the appropriate distribution method based on the facts. EPA should add a requirement that it will adhere to a systematic process that will explain and document why EPA selects a specific method; otherwise the public will have far less confidence in its conclusions.

With distribution methods, the upper distribution method provides the most conservative approach but the assumption that all treated acres will be present in every watershed in a state is not likely. Similarly, the lower distribution method where all treated acres are outside the watershed with overlap limited to treated acres in excess of the area outside of the watershed is equally unlikely. The uniform distribution method may provide a more reasonable assumption compared with the upper and lower methods but leaves open the possibility of underestimation when pest pressure drives usage into site specific regions within a state or watershed. (p. 26)

Thank you for the opportunity to comment.

Sincerely,
Sharon Selvaggio
Pesticide Program Specialist
The Xerces Society

Sarah Hoyle Pesticide Program Specialist The Xerces Society Lori Ann Burd Environmental Health Director, and Senior Attorney Center for Biological Diversity

References Cited

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 Working Paper FNU-171. Research unit Sustainability and Global Change, Hamburg

 University https://econpapers.repec.org/paper/sgcwpaper/171.htm
- Stone, Wesley W., Robert J. Gilliom, and Karen R. Ryberg. 2014. "Pesticides in U.S. Streams and Rivers: Occurrence and Trends during 1992-2011." *Environmental Science & Technology* 48 (19): 11025–30. https://doi.org/10.1021/es5025367.
- USGS. Pesticide National Synthesis Project. https://water.usgs.gov/nawqa/pnsp/usage/maps/
- Weston, D. P., R. W. Holmes, J. You, and M. J. Lydy. 2005. "Aquatic Toxicity due to Residential Use of Pyrethroid Insecticides." *Environmental Science & Technology* 39 (24): 9778–84. https://doi.org/10.1021/es0506354.

From: Tindall, Kelly [tindall.kelly@epa.gov]

Sent: 3/16/2020 6:15:13 PM

To: Suarez, Mark [Suarez.Mark@epa.gov]
CC: Berwald, Derek [Berwald.Derek@epa.gov]

Subject: RE: ESA question

Okay, I thought I would ask. If you mull it over, and come up with something that you want to add – they are hoping to get it to PRP this Friday.

Kelly

Kelly Tindall, Senior Biologist Biological Analysis Branch Biological and Economic Analysis Division Office of Pesticide Programs US Environmental Protection Agency 703-308-8188

ALL CONTENTS AND ATTACHMENTS TO THIS EMAIL CORRESPONDENCE ARE TO BE CONSIDERED DRAFT/INTERNAL/DELIBERATIVE ONLY, NOT TO BE SHARED UNLESS SPECIFICALLY AND EXPLICITLY STATED

From: Suarez, Mark <Suarez.Mark@epa.gov>Sent: Monday, March 16, 2020 1:13 PMTo: Tindall, Kelly <tindall.kelly@epa.gov>Cc: Berwald, Derek <Berwald.Derek@epa.gov>

Subject: RE: ESA question

Kelly

Ex. 5 Deliberative Process (DP)

Mark

From: Tindall, Kelly <<u>tindall.kelly@epa.gov</u>>
Sent: Monday, March 16, 2020 12:22 PM
To: Suarez, Mark <<u>Suarez.Mark@epa.gov</u>>
Cc: Berwald, Derek <<u>Berwald.Derek@epa.gov</u>>

Subject: ESA question

Mark,

Ex. 5 Deliberative Process (DP)

Kelly

Ex. 5 Deliberative Process (DP)

Kelly Tindall, Senior Biologist Biological Analysis Branch Biological and Economic Analysis Division Office of Pesticide Programs US Environmental Protection Agency 703-308-8188

ALL CONTENTS AND ATTACHMENTS TO THIS EMAIL CORRESPONDENCE ARE TO BE CONSIDERED DRAFT/INTERNAL/DELIBERATIVE ONLY, NOT TO BE SHARED UNLESS SPECIFICALLY AND EXPLICITLY STATED

- **Projected Percent Crop Treated (PCT) Evaluations**: BEAD completed 2 PCT evaluations for the registration of new uses.
- Label Use Summary Reports/Screening Level Usage Reports: BEAD completed 31 Label Use Summary reports, 60 Screening Level Usage Reports, and 24 Use and Usage Matrix reports in support of registration review.

From: Jarboe, Stephen [Jarboe.Steve@epa.gov]

Sent: 9/12/2019 2:11:51 PM

To: Suarez, Mark [Suarez.Mark@epa.gov]

Subject: RE: EOY Accomplishments

Ex. 5 Deliberative Process (DP)

FYI. Thanks again, Steve

From: Jarboe, Stephen

Sent: Wednesday, September 11, 2019 4:29 PM
To: Suarez, Mark <Suarez.Mark@epa.gov>

Subject: RE: EOY Accomplishments

Sorry Mark: I just got to your e-mail since I was answering, newest to oldest. Filled in numbers here:

Please let me know if you have any questions. Thanks, Steve

From: Suarez, Mark < Suarez. Mark@epa.gov > Sent: Wednesday, September 11, 2019 8:23 AM To: Jarboe, Stephen < Jarboe. Steve@epa.gov >

Subject: EOY Accomplishments

Steve,

Can you fill in the numbers for our FY19 accomplishments in the attached document? I know it's a short turn around, but if you can do it by 1, that would be great. If not, I will just let Kimberly know that they are in the works..

Thanks,

Mark

Regards,

Mark

Mark Suarez Acting Chief Science Information and Analysis Branch Biological and Economic Analysis Division US EPA (Mail Code 7503P) 1200 Pennsylvania Avenue, NW Washington, DC 20460

phone: 703-305-0120

From: Chism, William [Chism.Bill@epa.gov]

Sent: 3/18/2020 1:58:43 PM

To: Kaul, Monisha [Kaul.Monisha@epa.gov]; English, LisaRenee [English.LisaRenee@epa.gov]; Tindall, Kelly

[tindall.kelly@epa.gov]; Lenners, Alicia [lenners.alicia@epa.gov]; Crowley, Matthew [Crowley.Matthew@epa.gov];

Suarez, Mark [Suarez.Mark@epa.gov]

CC: Kiely, Timothy [Kiely.Timothy@epa.gov]; Wyatt, TJ [Wyatt.Tj@epa.gov]; Collantes, Margarita

[Collantes.Margarita@epa.gov]; Harty, Thomas [harty.thomas@epa.gov]

Subject: RE: Tiafenacil Hazard - mtg continued

Hi Everyone

I wanted to send out some bullets to help clarify my thoughts on this topic of a Hazard Comparison for a New AI.

- Currently we require hundreds of studies for a new active ingredient.
- This hazard comparison is not required by FIFRA.
- If this is part of an ESA assessment we should describe alternatives for all crops and states where it might be used.

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Bill

Bill Chism Senior Biologist Biological and Economic Analysis Division U.S. EPA/Office of Pesticide Programs (703) 308-8136 chism.bill@epa.gov

----Original Appointment----

From: Kaul, Monisha < Kaul. Monisha@epa.gov> Sent: Tuesday, March 17, 2020 4:10 PM

To: Kaul, Monisha; English, LisaRenee; Chism, William; Tindall, Kelly; Lenners, Alicia; Crowley, Matthew; Suarez, Mark

Cc: Kiely, Timothy; Wyatt, TJ; Collantes, Margarita; Harty, Thomas

Subject: Tiafenacil Hazard - mtg continued

When: Wednesday, March 18, 2020 4:00 PM-4:30 PM (UTC-05:00) Eastern Time (US & Canada).

Where: Skype Meeting

Rescheduling because of PRP. We can try to discuss briefly after the PRP discussion is over (10:15-10:30) so please call into the PRP number. If that does not work or we don't have enough time, let's meet at 4pm. Thanks.

Join Skype Meeting

Trouble Joining? Try Skype Web App

Join by pl	none
Toll numbe	Ex. 6 – Conference Code
Conference	
Forgot your	dial-in PIN? Help

English (United States)

From: Nesci, Kimberly [Nesci.Kimberly@epa.gov]

Sent: 7/2/2019 8:37:46 PM

To: Suarez, Mark [Suarez.Mark@epa.gov]
Subject: RE: Draft note to Rick - sounds OK?

Tomorrow morning is ok! Don't work late for this. See you tomorrow. K

From: Suarez, Mark

Sent: Tuesday, July 02, 2019 4:37 PM

To: Nesci, Kimberly <Nesci.Kimberly@epa.gov> **Subject:** RE: Draft note to Rick - sounds OK?

Ugh, I'm not going to finish before I need to go. I will send it to you later tonight.

From: Nesci, Kimberly

Sent: Tuesday, July 02, 2019 4:11 PM

To: Suarez, Mark < Suarez. Mark@epa.gov >
Cc: Anderson, Neil < Anderson. Neil@epa.gov >
Subject: Draft note to Rick - sounds OK?

Questions for you in red, some edits of your original language/additions in blue. OK?

Subject: NMFS Request for Usage Data (is there a more descriptive shorthand way to describe this?) for bromoxynil and prometryn.

Rick, Wynne, and Brian, (cc Mark, Marietta, anyone else? Claire?)

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Thank you, I really appreciate you taking the time on this and any feedback you may have.

Best, Kimberly

Kimberly Nesci, Acting Director Biological and Economic Analysis Division (BEAD) Office of Pesticide Programs Office of Chemical Safety and Pollution Prevention 703-308-8059

From: Nesci, Kimberly [Nesci.Kimberly@epa.gov]

Sent: 7/2/2019 6:55:31 PM

To: Suarez, Mark [Suarez.Mark@epa.gov]

Subject: RE: Review of NMFS request for the bromoxynil and

Ex. 5 Deliberative Process (DP)

Thx, Kimberly 308-8059

From: Suarez, Mark

Sent: Tuesday, July 02, 2019 2:02 PM

To: Nesci, Kimberly <Nesci.Kimberly@epa.gov>

Subject: Review of NMFS request for the bromoxynil and

Ex. 5 Deliberative Process (DP)

Regards, Mark

Mark Suarez
Acting Chief
Science Information and Analysis Branch
Biological and Economic Analysis Division
US EPA (Mail Code 7503P)
1200 Pennsylvania Avenue, NW
Washington, DC 20460

phone: 703-305-0120

From: Jarboe, Stephen [Jarboe.Steve@epa.gov]

Sent: 6/24/2019 1:51:25 PM

To: Hendrick, Lindsey [hendrick.lindsey@epa.gov]

CC: Suarez, Mark [Suarez.Mark@epa.gov]

Subject: RE: Thiencarbazone-methyl meeting follow-up

Ex. 5 Deliberative Process (DP)

Thanks in advance. Have a Good Week, too. Steve

From: Hendrick, Lindsey

Sent: Monday, June 24, 2019 7:14 AM

To: Jarboe, Stephen < Jarboe. Steve@epa.gov> **Cc:** Suarez, Mark < Suarez. Mark@epa.gov>

Subject: FW: Thiencarbazone-methyl meeting follow-up

Hi Steve,

Heather plans to have a conversation with PRD about Thiencarbazone-methyl and would like to know if SIAB would like her to ask if they need a PLUS. Would you like her to ask about this?

Thanks, Lindsey

From: McFarley, Heather

Sent: Thursday, June 20, 2019 4:50 PM

To: Hendrick, Lindsey < hendrick.lindsey@epa.gov>; Suarez, Mark < Suarez.Mark@epa.gov>; Chism, William < Chism.Bill@epa.gov>; Hanson, Charmaine < Hanson.Charmaine@epa.gov>; Lee, Andrew < Lee.Andrew@epa.gov>;

Berwald, Derek < Berwald. Derek @epa.gov >

Subject: RE: Thiencarbazone-methyl meeting follow-up

Hey all,

Per the meeting earlier this week, let's prepare a usage and benefits drop-in for the PWP. I began drafting the benefits info at the following sharepoint link ->

https://usepa.sharepoint.com/:w:/s/OCSPP/OPP/BEAD/Collaborate/EV9pYEaR95FDkjwVnOllGNgBKy_RHlaxyh4Imku10Bn0HA?e=AqWeT5

Lindsey- I plan to reach out to PRD to touch base on the plan to provide a benefits drop in for the PWP. Would you like me to check-in on if they expect a PLUS as well?

Bill- Do you think I should dig into more specific target weeds at this time?

Let me know if there are any questions/concerns. Thanks.

Have a good day, Heather

From: McFarley, Heather

Sent: Tuesday, June 18, 2019 1:52 PM

To: Kiely, Timothy < Kiely, Timothy@epa.gov>; Hendrick, Lindsey < hendrick.lindsey@epa.gov>; Suarez, Mark < Suarez.Mark@epa.gov>; Chism, William < Chism.Bill@epa.gov>; Hanson, Charmaine < Hanson.Charmaine@epa.gov>; Lee, Andrew@epa.gov>; Berwald, Derek < Berwald.Derek@epa.gov>; Paisley-Jones, Claire < Paisley-Jones.Claire@epa.gov>; Coy, Murphey (Richard) < cov.richard@epa.gov>; English, LisaRenee < English.LisaRenee@epa.gov>; Becker, Jonathan < Becker.Jonathan@epa.gov>; Smearman, Stephen < Smearman.Stephen@epa.gov>; Wyatt, TJ < Wyatt.Tj@epa.gov>

Subject: RE: Thiencarbazone-methyl and GnRH registration review meeting

Hey all,

To inform the thiencarbazone-methyl discussion.

Thiencarbazone-methyl Registration Review Pre-Meeting Information 6/18/19

Background:

- ALS inhibitor herbicide
- Use sites: corn (field, sweet, pop), wheat, and turf and ornamentals in residential settings

Chemical timeline:

FY19 Q4 Docket Opening

PRD (CRM Eric Fox, TL Melissa Grable) provided information:

- PPT overview of chemical (attached)
- Label tracker (attached)

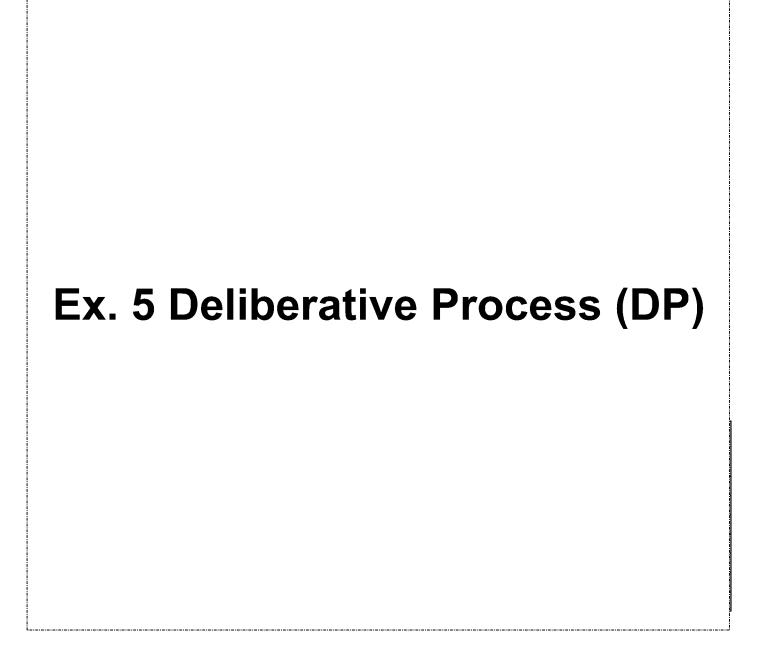
Current BEAD documents (completion timeline):

- SLUA: delivered to PRD on June 10, 2019 (attached)
- PLUS: Waiting to hear from PRD if report is required
- In 2008 BEAD/ACB provided an Environmental Chemistry Method Review to determine chemical properties of thiencarbazone and metabolites in water (attached)

DRA status and other risks of concern:

- 2008 HED DRA- no risks of concern
- EFED DRA- aquatic (RQs up to 1.1) and terrestrial (RQs up to 189) plant risks

Usage:



----Original Appointment----

From: Kiely, Timothy

Sent: Thursday, June 13, 2019 2:39 PM

To: Kiely, Timothy; Hendrick, Lindsey; Suarez, Mark; McFarley, Heather; Chism, William; Hanson, Charmaine; Lee, Andrew; Berwald, Derek; Paisley-Jones, Claire; Coy, Murphey (Richard); English, LisaRenee; Becker, Jonathan;

Smearman, Stephen; Wyatt, TJ

Subject: Thiencarbazone-methyl and GnRH registration review meeting

When: Tuesday, June 18, 2019 2:00 PM-2:30 PM (UTC-05:00) Eastern Time (US & Canada).

Where: 9771

A weekly meeting to discuss BEAD registration review activities. Please come prepared to discuss BEAD's next steps with your chemical(s).

Agenda

1. 2-2:15pm: thiencarbazone-methyl registration review next steps (Lindsey, Mark, Heather, Bill, Charmaine, Andy, Derek)

2. 2:15-2:30pm: Gonadotropin Releasing Hormone (GnRH) registration review next steps (Claire, Mark, Murphey, LisaRenee, Jonathan, Steve S., Charmaine, TJ)

Number: 202-991-0477 Conference ID: 5820020

Message

From: Pest Control Technology [enewsletter@pctonline.com]

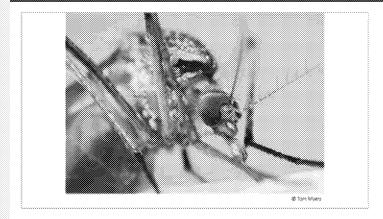
Sent: 2/12/2018 7:19:48 PM

To: Suarez, Mark [Suarez.Mark@epa.gov]

Subject: PCT E-Newsletter for Monday, February 12, 2018

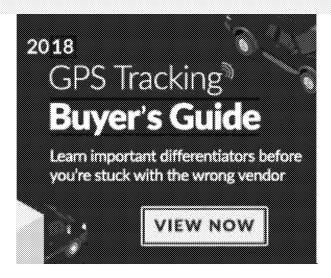


HEADLINE NEWS



Tom Myers Wins PCT's 16th Annual Photo Contest

Myers, owner of All-Rite Pest Control, Lexington, Ky., won with a close-up photo of a mosquito feeding on his arm.



EPA Administrator Pruitt Signs Endangered Species Act Memo for Pesticides

This action is a step towards improving the Endangered Species Act pesticide consultation process.

BedBug Central Survey: Activity in Central U.S. Rises in November

Bed bug activity skyrocketed in the central U.S. this past November, according to results from BedBug Central's Bed Bug Activity Survey.



PCO NEWS



Pi Chi Omega Scholarship Applications Now Being Accepted

The pest control fraternity has \$9,000 to award this spring to four students studying entomology.



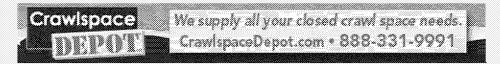


REMINDER



Get Listed on the PCT Top 100 List!

PCT magazine is in the process of identifying the largest 100 pest management firms in the U.S. Please fill out the form and submit it to PCT.



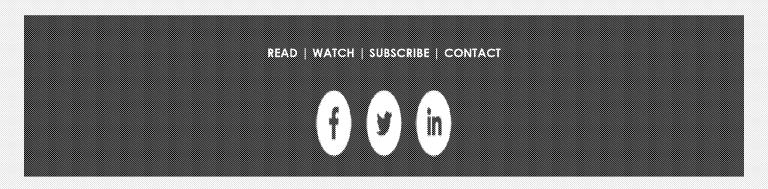
SUPPLIER NEWS

EVENTS



Trelona ATBS Annual Bait Stations Webinar is Wednesday

Learn more about Trelona Annual Bait Stations (ATBS) in a webinar featuring BASF's Antonia Chan and Dr. Bob Davis.



5811 Canal Road, Valley View, Ohio 44125

<u>Unsubscribe</u> from this specific email.

Opt Out of all emails and no longer receive any emails from us.

Message

From: Suarez, Mark [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP

(FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=9BDB9158F4B245F8969069AC019D4F13-MARK E SUAREZ]

Sent: 6/10/2020 3:10:06 PM

To: Crowley, Matthew [Crowley.Matthew@epa.gov]

Subject: RE: 2.5% & ESA info

Let's just talk to Brian. I don't know who from BEAD might have told him that or if they even meant to convey that. It will be much more efficient to talk with him.

From: Crowley, Matthew < Crowley. Matthew@epa.gov>

Sent: Wednesday, June 10, 2020 10:28 AM **To:** Suarez, Mark <Suarez.Mark@epa.gov>

Subject: FW: 2.5% & ESA info

As expected, see below. Any idea why Brian would think 0=0? That's the place to start. If you can't think of it, then you and I will have to contact him.

Finding a time for an actual meeting with all of us (me, you, T, M, Brian) will be tough in the immediate-term. If its just a misunderstanding then maybe we can just clean that up.

Matthew Crowley, Acting Branch Chief Science Information and Analysis Branch (SIAB) EPA/OCSPP/OPP/BEAD 703-305-7606

From: Nesci, Kimberly < Nesci, Kimberly@epa.gov>

Sent: Wednesday, June 10, 2020 10:16 AM

To: Crowley, Matthew < Crowley. Matthew@epa.gov>

Cc: Kiely, Timothy < Kiely. Timothy@epa.gov>; Anderson, Neil < Anderson. Neil@epa.gov>; Kaul, Monisha

<<u>Kaul.Monisha@epa.gov</u>> **Subject:** FW: 2.5% & ESA info

Matt,

Can you check in with Mark, and also Tim & Monisha on the propazine-specific 0% thing? Sounds like BEAD needs to reach consensus on this and close the loop with Brian Anderson pretty quickly to make sure EFED is conducting its BE in a way we all agree with.

Thanks so much! Kimberly

Kimberly Nesci, Acting Director Biological and Economic Analysis Division (BEAD) Office of Pesticide Programs Office of Chemical Safety and Pollution Prevention 703-969-9109 (cell) From: Kiely, Timothy < <u>Kiely.Timothy@epa.gov</u>>
Sent: Wednesday, June 10, 2020 8:44 AM
To: Nesci, Kimberly < <u>Nesci.Kimberly@epa.gov</u>>
Cc: Anderson, Neil < <u>Anderson.Neil@epa.gov</u>>

Subject: RE: 2.5% & ESA info

Kimberly,

Good morning.

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Tim

From: Nesci, Kimberly < Nesci.Kimberly@epa.gov>

Sent: Wednesday, June 10, 2020 8:14 AM **To:** Kiely, Timothy < <u>Kiely, Timothy@epa.gov</u>> **Cc:** Anderson, Neil < <u>Anderson, Neil@epa.gov</u>>

Subject: FW: 2.5% & ESA info

FYI – just making sure you agree with SIAB's conclusion that 0 = 0 for propazine, considering our conversation earlier this week.

From: Anderson, Brian < Anderson. Brian@epa.gov>

Sent: Wednesday, June 10, 2020 7:52 AM **To:** Nesci, Kimberly Nesci.Kimberly@epa.gov

Subject: RE: 2.5% & ESA info

Ex. 5 Deliberative Process (DP)

Thanks for this email, it is helpful.

Brian

From: Nesci, Kimberly < Nesci.Kimberly@epa.gov>

Sent: Wednesday, June 10, 2020 6:36 AM

To: Anderson, Brian < Anderson. Brian@epa.gov>

Subject: FW: 2.5% & ESA info

From: Suarez, Mark <<u>Suarez.Mark@epa.gov</u>>
Sent: Wednesday, June 10, 2020 12:07 AM

To: Nesci, Kimberly < Nesci.Kimberly@epa.gov>; Crowley, Matthew < Crowley.Matthew@epa.gov>

Cc: Anderson, Neil < Anderson. Neil@epa.gov>

Subject: RE: 2.5% & ESA info

Kimberly,

Our rationale for 2.5 percent crop treated (PCT) is that the pesticide usage data available are based on surveys of growers and/or other user groups. These surveys are designed to be statistically robust, but by definition sample the target populations rather than provide a complete accounting of all pesticide usage. Therefore, while "no usage reported" is generally a good indicator of limited usage of an active ingredient in a crop and in the defined geographic area, it should not be confused with "no or zero usage" of a pesticide for the crop in the surveyed area(s) during the period surveyed.

The fact that usage may be surveyed, but not reported is different than no usage inevitably leads to the question of the appropriate PCT value to use in assessments. In addition to the potential for events to go undetected in the survey, the data are not being used purely to determine historical usage. These historical data are being used to forecast future usage, which adds some additional uncertainty. SIAB has historically recommended that a default value above 0 be used when no usage was reported or usage was very low. A PCT of 2.5 has been recommended for use in dietary assessments for the acute dietary input when a maximum PCT of <2.5 was reported. At this time, this is the proposed default value recommended for the ESA BEs based on the existing precedent. It should be noted that despite some uncertainties, historical pesticide usage is the best available indicator of future pesticide usage and PCT estimates have a longstanding history of use in dietary risk assessments.

Regards, Mark

Mark Suarez
Senior Scientist
Science Information and Analysis Branch
Biological and Economic Analysis Division
US EPA (Mail Code 7503P)
1200 Pennsylvania Avenue, NW
Washington, DC 20460

phone: 703-305-0120

From: Nesci, Kimberly < Nesci.Kimberly@epa.gov>

Sent: Thursday, June 04, 2020 3:36 PM

To: Suarez, Mark <Suarez.Mark@epa.gov>; Crowley, Matthew <Crowley.Matthew@epa.gov>

Cc: Anderson, Neil < Anderson. Neil@epa.gov>

Subject: 2.5% & ESA info

A couple of updates from our general with EFED:

2.5% I spoke to EFED mgmt about the 2.5 percent during my general (Marietta, Jan and Brian) and I think they need something in writing from us on the 2.5% recommendation. Can you send an email? Email is good enough.

<u>Analysis of Usage Data</u> - Also, they are ok with putting out our draft analysis for comment at the same time that the BEs go out in draft for comment. That said, they need to incorporate any changes as a result of the analysis (and public

comment) into the final BEs, which are due April 2020. So, make sure to find out when EFED needs our final version of the analysis and our recommendations to them in order for them to meet the April deadline for the FINAL BEs, and make sure that's doable in accordance with the existing schedule.

<u>Step 0 & CLA comments (sub county):</u> Marietta and Rick are meeting with CLA tomorrow; step 0 may come up. I'll let you know the outcome. I understand from Brian A that the team is going to be meeting to discuss the response to comments shortly. The review of the step 0 and CLA docs should be part of that. Also, it appears that the Step 0 proposal relies on the sub-county approach.

<u>SETAC</u> - EFED submitted a very general abstract to SETAC for that session; they'll be sharing with us. If there's an opportunity for us to present (virtually or otherwise), we should do that.

<u>EMPM</u> – Similarly, EMPM will be an opportunity for us to discuss the PCA/PCT and involvement in DW projects. I'll get you that information when it goes out, too.

Talk more shortly – wanted to download before this leaves my head. Thanks!

Kimberly Nesci, Acting Director Biological and Economic Analysis Division (BEAD) Office of Pesticide Programs Office of Chemical Safety and Pollution Prevention 703-969-9109 (cell)

Message

From: Suarez, Mark [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP

(FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=9BDB9158F4B245F8969069AC019D4F13-MARK E SUAREZ]

Sent: 6/8/2020 8:35:39 PM

To: Kiely, Timothy [Kiely.Timothy@epa.gov]; Kaul, Monisha [Kaul.Monisha@epa.gov]

CC: Crowley, Matthew [Crowley.Matthew@epa.gov]; Tindall, Kelly [tindall.kelly@epa.gov]; Sells, Dexter

[Sells.Dexter@epa.gov]; Berwald, Derek [Berwald.Derek@epa.gov]

Subject: RE: Propazine ESA assessment
Attachments: Propazine SUUM for ESA_signed.pdf

Ex. 5 Deliberative Process (DP)

We cannot say that there is zero usage. We are, and have been, considering the appropriate value for EFED to use in the ESA assessments when the reported usage of an AI on a site in a state is very low or not reported. We report the available usage data in the extended SUUMs (see the propazine extended SUUM attached), but we have discussed with EFED the appropriate values to use as model inputs because we no reported usage is not the same as no usage. Capturing rare events is difficult. So, we have recommended that a default baseline value be used when no usage was reported or usage was very low. The value 2.5% was an obvious choice due to the precedent set in SLUAs. We have been listing <2.5% as the maximum PCT for crops with 0-2.5% reported usage on SLUAs for a long time. That being said, we are actively engaged in an analysis of the usage data and longer term forecasting of usage based on historical usage data. The recommended value for unreported usage, or very low usage, may change as a result of that analysis.

As an aside, the ESA method distinguishes between surveyed and no reported usage and not surveyed. The 2.5% value is used is usages is between no reported and 2.5 PCT, while a surrogacy method is applied, if the site is registered, but not surveyed in the state.

Mark

From: Kiely, Timothy < Kiely. Timothy@epa.gov>

Sent: Monday, June 08, 2020 2:19 PM

To: Kaul, Monisha <Kaul.Monisha@epa.gov>; Suarez, Mark <Suarez.Mark@epa.gov>

Cc: Crowley, Matthew <Crowley.Matthew@epa.gov>; Tindall, Kelly <tindall.kelly@epa.gov>; Sells, Dexter

<Sells.Dexter@epa.gov>; Berwald, Derek <Berwald.Derek@epa.gov>

Subject: RE: Propazine ESA assessment

Hello. I pulled some information from Dexter and Kelly's assessment regarding production. Kynetec currently surveys 11 states. There were as many as 24 states surveyed in the early 2000s when propazine was not registered (I think – I cannot remember exactly when the registration went away and came back). TX (and maybe Kansas) is the only state where there has been consistent usage of propazine since the registration came back (see table). The table that Kelly sent in the earlier message is a total over five years, right? I don't think we should limit the states based only on usage.

Kelly/Dexter, did we get any comments on the sorghum assessment from stakeholders? If so, did the comments question our assessment of the use and importance of propazine? Would you expect production practices in other states to be similar to TX, OK and KS? If so, which states? Would you recommend including these states in the list of states to continue the registration? Would you recommend off labeling regions/states where the use has not occurred historically? If not, is there anything in the data to suggest that usage would occur int these regions? Thank you.

Tim

From Atrazine and Propazine Use on Grain Sorghum and Fallow Areas: Response to Comments, Usage, Benefits, and Impacts of Potential Mitigation (Kelly T., Dexter S.) Grain sorghum is well-suited to the dry Plains states because of its resistance to drought. Although dryland production is more prevalent, sorghum is also grown under irrigated conditions (Kansas State University, 2019a). According to USDA NASS, sorghum is mainly grown in the southern United States (Arizona to Georgia) and in the Plains states (Colorado to Illinois). Ninety-six percent of acres devoted to sorghum production are in Kansas (47%), Texas (37%), Colorado (7%) and Oklahoma (6%)^[1]. Ex. 5 Deliberative Process (DP) From: Kaul, Monisha < Kaul. Monisha@epa.gov> Sent: Monday, June 08, 2020 10:41 AM To: Suarez, Mark <Suarez. Mark@epa.gov> Cc: Kiely, Timothy < Kiely, Timothy@epa.gov>; Crowley, Matthew < Crowley, Matthew@epa.gov>; Tindall, Kelly <tindall.kelly@epa.gov> Subject: FW: Propazine ESA assessment Mark -

We had a separate meeting today about triazines and ESA label changes and this came up. They said you're still working on answering questions about the data. I don't have the details but one question that came up is which states are true

^[1] Total may be greater than the individual percentages due to rounding.

zeros vs 2.5% - and if there are any states we should push to retain use in, like the ones in the table below. I will add this to our Tuesday coordination meeting – probably at 3pm since the 2pm meeting seems full, unless you already have the answers. Let me know what you think.

Thanks,

Monisha

From: Tindall, Kelly < tindall.kelly@epa.gov>

Sent: Friday, June 05, 2020 3:04 PM

To: Kaul, Monisha < <u>Kaul.Monisha@epa.gov</u>> **Subject:** RE: Propazine ESA assessment

Based on the data that we have, all use is in these states – but that is also \sim 80% of sorghum is grown there. I do not know what states are surveyed for sorghum given the geography of where it is grown.

Kelly

Ex. 5 Deliberative Process (DP)

Kelly Tindall, Senior Biologist Biological Analysis Branch Biological and Economic Analysis Division Office of Pesticide Programs US Environmental Protection Agency 703-308-8188

ALL CONTENTS AND ATTACHMENTS TO THIS EMAIL CORRESPONDENCE ARE TO BE CONSIDERED DRAFT/INTERNAL/DELIBERATIVE ONLY, NOT TO BE SHARED UNLESS SPECIFICALLY AND EXPLICITLY STATED

From: Kaul, Monisha < Kaul. Monisha@epa.gov>

Sent: Friday, June 05, 2020 2:45 PM **To:** Tindall, Kelly < tindall.kelly@epa.gov > **Subject:** FW: Propazine ESA assessment

Where is the use?

From: Corbin, Mark < Corbin. Mark@epa.gov>

Sent: Friday, June 05, 2020 2:40 PM

To: Perry, Tracy < Perry.Tracy@epa.gov; Kiely, Timothy Kiely, Timothy@epa.gov; Kaul, Monisha

< Kaul. Monisha@epa.gov >; Anderson, Brian < Anderson. Brian@epa.gov >; Spatz, Dana < Spatz. Dana@epa.gov >; Sherman, Kelly < Sherman. Kelly @epa.gov >

Subject: RE: Propazine ESA assessment

Tracy

This is great. and to your question it would be ideal for ESA if we can get as wide ranging an exclusion as possible. Getting all states except TX, OK and KS would greatly reduce the number of species that would need to be considered.

mark

From: Perry, Tracy < Perry.Tracy@epa.gov>

Sent: Friday, June 05, 2020 1:50 PM

To: Kiely, Timothy < Kiely. Timothy@epa.gov>; Kaul, Monisha < Kaul. Monisha@epa.gov>; Anderson, Brian < Anderson. Brian@epa.gov>; Spatz, Dana < Spatz. Dana@epa.gov>; Corbin, Mark < Corbin. Mark@epa.gov>; Sherman, Kelly@epa.gov>

Cc: Biscoe, Melanie <Biscoe, Melanie@epa.gov>; Tindall, Kelly <tindall.kelly@epa.gov>; McFarley, Heather <\doc{McFarley.Heather@epa.gov>; Chism, William <Chism.Bill@epa.gov>; Berwald, Derek <Berwald.Derek@epa.gov>; Kells, Bradley <kells.bradley@epa.gov>; Rossmeisl, Colleen <Rossmeisl.Colleen@epa.gov>; Donovan, Elizabeth <\doc{Donovan.Elizabeth@epa.gov>; Hafner, Sarah <\doc{hafner.sarah@epa.gov>; Louie-Juzwiak, Rosanna <\doc{Louie-Juzwiak.Rosanna@epa.gov>; Connolly, Jennifer <Connolly, Jennifer@epa.gov>; Wait, Monica <\doc{Wait.Monica@epa.gov>; Jakob, Avivah <\doc{Jakob.Avivah@epa.gov>; Smith, Carolyn <smith.carolyn@epa.gov>; Bongard, Christian <\doc{bongard.christian@epa.gov>; Walsh, Linsey <\doc{Walsh.Linsey@epa.gov>}

Subject: FW: Propazine ESA assessment

All – let's talk about propazine on Monday AM at our scheduled ESA/triazine meeting. The registrant is willing to restrict the label to the contiguous United States (minus CA and FL) – see email below. However, I have not yet raised the idea of limiting use to the states of TX, OK, and KS only, as the EFED team has suggested. Do we want to make this additional suggestion to the registrant?

-Tracy

From: Nathan Ehresman [US] <nathane@albaughllc.com>

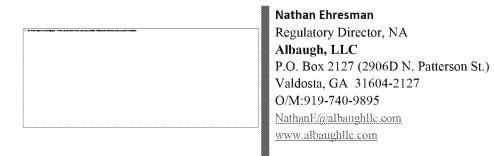
Sent: Friday, June 05, 2020 11:36 AM **To:** Perry, Tracy < Perry.Tracy@epa.gov **Subject:** FW: Propazine ESA assessment

Hi Tracy

Nearly all of Propazine use has been (historically) in Texas. We don't have an issue or reason not to move forward with the mitigations you suggest below. We would be willing to label off CA/FL, HI, and US Territories. Not a problem.

Please advise if any further action is needed at this time.

Nathan



From: Carolyn Miter [US] < Carolyn M@albaughlic.com>

Sent: Friday, June 5, 2020 10:28 AM

To: Nathan Ehresman [US] <nathane@albaughlic.com>

Subject: FW: Propazine ESA assessment

Please contact Tracy at 703-308-0128.

Thanks.

From: Perry, Tracy < Perry.Tracy@epa.gov>
Sent: Friday, June 5, 2020 10:27 AM

To: Carolyn Miter [US] < Carolyn M@albaughlic.com >

Cc: Smith, Carolyn <smith.carolyn@epa.gov>; Sherman, Kelly <Sherman.Kelly@epa.gov>; Jakob, Avivah

<Jakob.Avivah@epa.gov>

Subject: FW: Propazine ESA assessment



***This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender email address and know the content is safe. ***

Dear Ms. Miter,

I understand that you may have taken over from Morris Gaskins as the contact for propazine. We have been trying to contact him over the past several weeks to discuss the upcoming endangered species biological evaluation for propazine (see below). We would appreciate hearing back from you as soon as possible on the potential voluntary label modifications outlined below. Feel free to contact me at 703-308-0128 through 5 pm today.

Regards,

Tracy L. Perry
Senior Regulatory Advisor
Pesticide Re-evaluation Division
Office of Pesticide Programs
U.S. Environmental Protection Agency
(703) 308-0128

From: Perry, Tracy

Sent: Wednesday, May 13, 2020 4:40 PM

To: morrisg@albaughllc.com

Cc: Smith, Carolyn <smith.carolyn@epa.gov>; Jakob, Avivah <Jakob.Avivah@epa.gov>; Sherman, Kelly

<Sherman.Kelly@epa.gov>

Subject: Propazine ESA commitment letter

Good afternoon Morris,

I am working with the OPP propazine registration review team, specifically on coordinating the endangered species assessment piece. As you may know, in addition to registration review, EPA is currently working on a nationwide endangered species assessment for propazine. The team has identified several potential label modifications that would streamline the assessment and any subsequent consultations with the Fish and Wildlife Service and/or the National Marine Fisheries Service. ESA assessments are very geographically specific to the threatened and endangered species' locations. As you might surmise, there are many listed species in CA, FL, and HI, places where it seems unlikely that much sorghum is grown. The team has identified the following voluntary label modifications (EPA Reg. 42750-148) that would greatly reduce the scope and complexity of the assessment:

- "Not registered for use in the states of California or Florida." There are many Listed species located exclusively in California and Florida. If we can remove CA and FL from our assessment (due to no overlap in the use area with those Listed species), that would save a lot of work and analysis. However, the label statement as currently written is not worded strongly enough to be considered a prohibition on use in those states. Would you be willing to update the label with a prohibition on use in CA and FL? Something along the lines of, "Use of this product is prohibited in the states of California and Florida." In the absence of a clear label prohibition, the ESA assessment would need to assume that propazine is used everywhere sorghum is grown, which is likely an overestimate.
- An even greater impact would be to off-label use of propazine in Hawaii and the U.S. territories (Puerto Rico, Guam, American Samoa, the U.S. Virgin Islands, and the North Mariana Islands), thereby restricting registered uses to the contiguous United States (there are ~640 listed species in these areas alone).

These label modifications would be captured in the Interim Registration Review decision label table and presented as voluntarily measures. In order to incorporate these label changes into the listed species assessment, we would need a letter committing to these changes that we could reference in the ESA biological evaluation.

Please feel free to contact me with any questions.

Regards,

Tracy L. Perry

Senior Regulatory Advisor
Pesticide Re-evaluation Division
Office of Pesticide Programs
U.S. Environmental Protection Agency
(703) 308-0128



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON D.C., 20460

OFFICE OF CHEMICAL SAFETY AND POLLUTION PREVENTION

Briana atte

March 13, 2020

MEMORANDUM

SUBJECT: Propazine (080808) National and State Summary Use and Usage Matrix

FROM: Briana Otte, Biologist

Science Information and Analysis Branch

Biological and Economic Analysis Division (7503P)

Office of Pesticide Programs

THRU: Mark Suarez, Acting Chief

Science Information and Analysis Branch

Biological and Economic Analysis Division (7503P)

Office of Pesticide Programs

TO: Dana Spatz, Supervisory Chemist

Environmental Risk Branch III

Environmental Fate and Effects Division

Office of Pesticide Programs

Rosanna Louie-Juzwiak, Risk Assessment Process Leader

Environmental Risk Branch III

Environmental Fate and Effects Division

Office of Pesticide Programs

Introduction

This document contains national and state-level use and usage data on propazine, an herbicide registered for control of annual broadleaf weeds in sorghum and ornamental crops. National-level agricultural data are presented in Figure 1 and Table 1; state-level agricultural data are presented in Table 2; national-level non-agricultural data are presented in Table 3.

The Environmental Protection Agency (EPA) has been working with the United States Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) to develop a method for assessing the risks of pesticides to endangered and threatened species. Given that many listed species range over large areas, it is necessary to consider use of pesticides on a landscape

scale, rather than simply a field or a small watershed. One consideration involves the percent of the crop in a given area (relevant to a listed species' range) that is treated with a pesticide. There are uncertainties in extrapolating from national level usage data to regional and state level ranges of protected species. In particular, national level data do not distinguish if there are areas of a species' range where usage is greater or less than the average national usage. In order to address these concerns, this document provides all available estimates of pesticide usage data for atrazine, nationally and by state. All registered use sites as of September 2019 are listed although usage data are not available for every site.

The intended use of the data presented here is to inform assumptions about how propazine is used in the United States and the extent, variability, and rate of that usage at the state-level. Pesticide usage data are not reported below the state-level; usage data at smaller levels may not be statistically valid due to reduced sample size. Extent and variability of usage at the state level are presented using minimum, maximum, and average percent crop treated (PCT) over the five-year observation period (Table 2). PCT is calculated as the percent of the acres grown for a crop (CAG) that are treated with propazine. Additionally, the data may inform assumptions about crops and states where propazine is likely not being used, by identifying crops that are surveyed but where usage is not observed during the observation period. The state-level estimates of pesticide usage presented here (especially PCT) can be used to inform estimates of the proportion of a species range that may be exposed to propazine.

The pesticide usage data summarized herein were obtained from both public and private (proprietary) sources. As presented, the data are not proprietary, business confidential, or a trade secret. The most recent five years of available data as of September 2019 were used in order to represent current usage and the most recent use trend.

Data Sources

- **Kynetec USA, Inc. The AgroTrak Study, Database Subset (Kynetec)**—
 proprietary pesticide usage data. These data are collected and sold by a private
 market research firm. The data are collected by annual surveys of agricultural users
 in the continental United States and provides pesticide usage data for about 60 crops,
 including both specialty and row crops. The survey design targets at least 80 percent
 of US acreage/production of the surveyed commodities. Survey methodology
 provides statistically valid results, typically at the state and national levels.
- Kline and Company Data (Kline) proprietary pesticide usage data. Data covers pesticide usage in several U.S. markets, including consumer, professional pest management, turf and ornamentals, food handling establishments, stored grain, industrial vegetation, as well as specialty biocides and biopesticides. Data are collected via surveys of pest management companies, suppliers, dealers, distributors, food-handling establishments, trade associations, consumers, and retailers. Market sizes and brand shares are determined by analyses of sales and other data obtained through interviews and are believed to be sufficiently accurate for screening-level

needs at the national level. Market reports reflect usage by class/market segment and chemical and are based on sales information (manufacturer and retail) and end-user surveys. Study dates vary by market sector.

Data Presentation

The presented usage data are averaged over the number of years of available survey data during the most recent five years of available data, based on sampling frequency (five years for Kynetec, and 1-2 years for Kline), regardless of whether usage is observed in each surveyed year. The presented data may thus underestimate the maximum yearly usage. For crops less than 80% California production, Kynetec is the primary source of usage data. Kynetec is the primary data source as it is collected annually and tends to provide the most robust usage data among the available data sources. The presented data may not be a reliable indicator of the variability in usage between individual years. In certain cases, data are unavailable or withheld. These cases are specified in the tables as follows:

- Some data sources do not provide all data elements. When a data element is not available, this is indicated with a "--"notation in the relevant column.
- In some cases, not enough samples are available to establish a robust average. This is indicated with the notation "Insufficient number of reports to establish an estimate". Generally, this indicates that the chemical is only periodically used by a small number of users.
- If a registered use site is surveyed by one of our data sources but no usage is observed, this is indicated with the notation "Surveyed but no usage reported" across the data columns. Generally, the lack of reported usage data for the pesticide on a surveyed crop indicates that there is a very low likelihood that the given pesticide is used on that crop.

If a registered use site is not surveyed nationally by any of our data sources, this is indicated with the notation "Not Surveyed at National Level" across the data columns.

Variables are rounded as follows:

Average pounds of active ingredient applied and average total acres treated—Annual average pounds of the pesticide applied and total acres treated are reported for each agricultural crop (i.e., for surveyed states, not for the entire United States). Values are calculated by averaging within years, averaging across years, and then rounding. Any surveyed year without reported usage for the AI is included as a value of zero pounds applied in the calculation of the average. Values are rounded using common rounding rules (i.e., the half round up method). Note: If the estimated value is less than 500, then that value is labeled <500. Estimated values between 500 & <1,000,000 are rounded to 1 place value. Estimated values of 1.000.000 orgreater are rounded hundred thousands' place value. (Examples: 478 would be reported as "<500"; 43,873 would be reported as "40,000"; 47,873,901 would be reported as "47,900,000")

- Average percent of crop treated Values are calculated by averaging within years, averaging across years, and then rounding to the nearest multiple of 5. Note: If the estimated value is less than 1, then the value is labeled <1. If the estimated value is less than 2.5, then the value is labeled <2.5.
- Maximum percent of crop treated Value is the single maximum annual average value reported across all years. The value is rounded up to the nearest multiple of 5. Note: If the estimated value is less than 2.5, then the value is labeled < 2.5.

Summary

Propazine is an herbicide, registered in 1998, for control of annual broadleaf weeds in sorghum and ornamental crops. The agricultural usage trend for propazine since 1998 is presented in Figure 1. Nationally, propazine usage on sorghum was very low from 1998 through 2007. During the most recent 10 years of data, propazine usage has remained relatively consistent, except for 2015, which showed an increase in both pounds active ingredient applied and total acres treated. This increase corresponded with a spike in sorghum crop acres grown in the same year (Figure 1). During the most recent five years of available survey data (Kynetec 2013 - 2017), an annual average of approximately 200,000 pounds of propazine was applied to an approximate average of 300,000 acres of agricultural crops, (Table 1), in 3 states (Table 2). Approximately 100% of the pounds of propazine applied and total acres treated agriculturally are to sorghum (Milo). Further information on national usage of propazine by crop is available in Table 1. Further information on percent of crops treated with propazine by state is available in Table 2. National-level non-agricultural usage data are available in Table 3.

Agricultural Usage

Propazine is an herbicide registered for use on the sites listed in the tables below. The following document presents a summary of the use and usage data that are available to the Agency on this active ingredient, during the years listed.

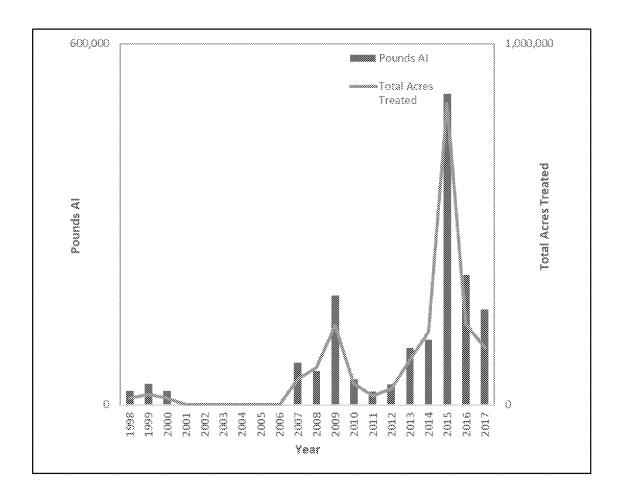


Figure 1: Propazine Total Acres Treated and Total Pounds A.I. Applied (1998-2017). Source: Kynetec. 1998-2017.

Table 1. National Propazine Agricultural Usage by Crop (Data Averaged and Rounded

Over Reported Years)

Crop	Data Source	States with Reported Usage	Avg. Annual Pounds AI Applied *	Avg. Annual Total Acres Treated ^b	% Applied by Air	Avg. Single Al Rate (lbs Al/A)	Max Single Labeled Rate ^c (lbs AI/A)
Field Crops		Se	e individual cr	ops below			1.20
Sorghum (Milo)	Kynetec (2013-2017)	OK, KS, TX	200,000	300,000	0%	0.71	1.20

Notes				
Kynetec (YEAR-YEAR)	Agricultural usage surveyed by market research firm(s). Values rounded.			
a	The pounds AI displayed in this document may differ from those displayed in the SLUA and other BEAD documents, because different calculation methods were used.			
b	Total Acres Treated accounts for multiple applications to a single area. This may overestimate the number of acres treated as some acres are treated more than once.			
с	Max labeled rate from the 2019 Propazine Pesticide Label Use Summary (PLUS) Maximum Use Scenario Report.			

Table 2. Propazine Agricultural Usage by Crop and State (Data Averaged and Rounded

Over Reported Years)

	iteu iears	7					
Crop Field	Data Source	State	Avg. Annual Crop Acres Grown [†]	Avg. Annual Total Lbs. AI Applied * dividual crops below	Min, Annual PCT	Max. Annual PCT	Avg. Annual PCT
Crops			Sec iii	arriduar crops ocion			
Sorghum (Milo)	Kynetec (2013-2017)	Oklahoma	400,000	1,000	0%	<2.5%	<1%
		Kansas	3,000,000	5,000	0%	<2.5%	<1%
		Texas	2,500,000	200,000	5%	30%	15%
		AR, CO, GA, IL, LA, MO, NE, NM, OK, SD	1,400,000	Surveyed but No Usage Reported			d

	Notes
Kynetec (YEAR-YEAR)	Agricultural usage surveyed by market research firm(s). Values Rounded.
†	Crop Acres Grown (CAG) represents the total number of acres that are grown of the crop in each state. It is independent of treatment with any pesticide. CAG values come from Kynetec estimate.
a	The pounds AI displayed in this document may differ from those displayed in the SLUA and other BEAD documents, because different calculation methods were used.

Non-Agricultural Usage

Table 3. National Propazine Non-Agricultural Usage and Use by Crop (Data Averaged and Rounded Over Reported Years)

Site	Data Source	Avg. Annual Pounds Al Applied *	Avg. Annual Acres Treated ^b	Max Single Labeled Rate (lb AI/A)
Ornamentals	Kline (2014)	Surveyed but No	Usage Reported	1.53

Notes				
Kline (YEAR)	Nonagricultural usage surveyed by market research firms.			
a	The pounds AI displayed in this document may differ from those displayed in the SLUA and other BEAD documents, because different calculation methods were used.			
ь	Total Acres Treated accounts for multiple applications to a single area. This may overestimate the number of acres treated as some acres are treated more than once.			
С	Max labeled rate from 2019 Propazine Pesticide Label Use Summary (PLUS) Report.			

Attachment: Propazine SUUM 2020 final.xlsx

Message

From: Suarez, Mark [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP

(FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=9BDB9158F4B245F8969069AC019D4F13-MARK E SUAREZ]

Sent: 3/23/2020 1:18:59 PM

To: Crowley, Matthew [Crowley.Matthew@epa.gov]

Subject: RE: Simazine and Atrazine extended SUUMs - INTERNAL/DELIBERATIVE/DO NOT DISTRIBUTE

Attachments: Chlorpyrifos SUUM_EXAMPLE.xlsx; AgroTrak Overview.pdf; AgroTrak Quality Management Plan.pdf; Usage Data

Source Summary-Crosswalk 2.27.2020.xlsx

Matt.

Attached is a DRAFT workbook for chlorpyrifos. If you look at the Table 1 tab, it provides both the raw and rounded values in adjacent table (scroll right).

PCT is provided by Kynetec, NASS, or CalDPR, but we can calculate the PCT using the Base Acres Treated (BAT) and the Crop Acres Grown. We average over the reporting period (the denominator is the number of years in which the survey occurred for that source/use site). In the SLUAs, we may combine Kynetec and NASS data within in a year, in which case we average within years and then over the period. In that case we are calculating a PCT.

A presentation, AgroTrak Overview, that Greg Malcom gave is attached. I think it gives a good overview of what and how they survey.

Kynetec surveys toward the end of the growing season for each crop using phone, web, and in-person surveys. The presentation gives more detail on other aspects of the survey.

The Crop/Site names are ours. Unfortunately, they are not the same across all sources (neither are the Als names, nor the way that isomers or salts are handled). The Excel spreadsheet, Usage Data Source Summary-Crosswalk, shows the way that he treat these.

The time required is highly variable. An AI like propazine has one crop use and few non-ag uses. So, it can be done relatively quickly. It is still a few days to search of for uses that don't show up in the usage reports, and then make sure that rates are expressed correctly. Then there is the issue of non-age usage, which requires some additional consideration. The review takes a few hours to be done thoroughly, as well. So, all told, I would estimate 16-24 FTE hours for a simple SUUM, including reviewers. This assumes that we have a current PLUS report and there aren't any oddities that need to be resolve. A complex SUUM, like glyphosate, will take much longer for both generation and review. That's an example of an AI that has to be cross-walked for both crops and AI name. It also has many ag and non-ag uses. That kind of AI might take 40-80 hours for the analysis and another 24 hours of review time (team and BC).

The Extended and Super SUUM (pronounced like "SUM" by us; pronounced "SOOM" (think zoom) by NMFS) are the same. These are SUUMs created for the ESA assessments (and likely other uses moving forward, like the DW refinement) that include state level usage estimates.

Please, let me know if any of this doesn't make sense.

Mark

From: Crowley, Matthew < Crowley. Matthew@epa.gov>

Sent: Monday, March 23, 2020 6:58 AM **To:** Suarez, Mark <Suarez.Mark@epa.gov>

Subject: RE: Simazine and Atrazine extended SUUMs - INTERNAL/DELIBERATIVE/DO NOT DISTRIBUTE

Hi Mark,

Can you send me one of the workbooks where the calculations are actually shown? I just want to try to have a quick look at all that averaging going on (zeros, within-years, across-years, etc.)

Ex. 5 Deliberative Process (DP)

Matthew Crowley, Acting Branch Chief Science Information and Analysis Branch (SIAB) EPA/OCSPP/OPP/BEAD 703-305-7606

From: Suarez, Mark <<u>Suarez.Mark@epa.gov</u>>
Sent: Monday, March 16, 2020 2:45 PM
To: Spatz, Dana <<u>Spatz.Dana@epa.gov</u>>

Cc: Louie-Juzwiak, Rosanna < Louie-Juzwiak. Rosanna@epa.gov>; Crowley, Matthew < Crowley. Matthew@epa.gov>

Subject: Simazine and Atrazine extended SUUMs - INTERNAL/DELIBERATIVE/DO NOT DISTRIBUTE

Dana,

Please find the finalized simazine and atrazine SUUMs and associated excel files attached.

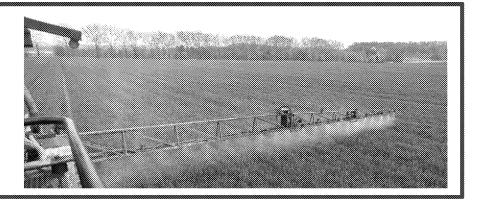
Regards, Mark

Mark Suarez
Senior Scientist
Science Information and Analysis Branch
Biological and Economic Analysis Division
US EPA (Mail Code 7503P)
1200 Pennsylvania Avenue, NW
Washington, DC 20460

phone: 703-305-0120

kynetec





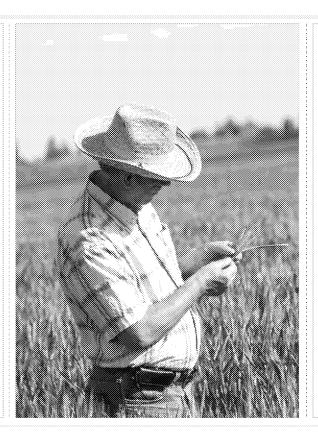
AgroTrak® US Study

Kynetec's AgroTrak® kynetec



The Study

For five decades Kynetec has tracked agchem use at the farm gate level in the U.S., and in the process has built a valuable historical knowledge bank for the agrochemical industry. AgroTrak® is designed to address questions asked most often by the industry.





The Goal

- ✓ Track farmer pesticide usage and identify emerging use trends.
- ✓ Monitor product & company shares.
- Define prospective markets for new compound introductions.
- ✓ Evaluate relative strengths & weaknesses of key players.
- ✓ Stratify existing market segments.
- ✓ Serve as quantifiable data for U.S. EPA product registration.

AgroTrak® - Methodology



Sample Population

Prospective respondents a compilation of:

- Growers
- Processors
- > Canneries and packing houses
- Ranchers
- > Agents of growers, including PCAs. consultants, custom applicators, retailers

Farmers contacted after most applications made to ensure actual usage reported. Respondents originate from:

- List of 2018 AgroTrak® respondents.
- Extensive Kynetec database lists
- Qualified farmers from list vendors and big data sources.

Accuracy

To estimate number of farms, acres, and geographical locations of farmers for each crop Kynetec utilizes:

- ≥ 2017 U.S. Ag Census
- USDA crop acreage reports
- > Annual state-generated agricultural crop statistics

Data are projected at state and/or CRD level to represent the universe of all crop farmers in the geographies. This projection process employs a least squares multiple regression procedure.

Reliability estimates are offered as a service to our clients.

Full and accurate reporting is the most important aspect of this study so we utilize a variety of multi-level data evaluations to minimize reporting errors.





Collection Methods

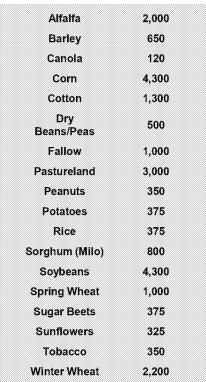


- Big data sources
- Web surveys
- □ Telephone interviews
- Mail questionnaires

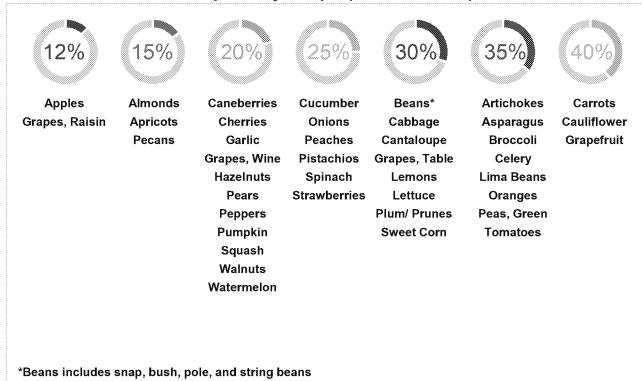
AgroTrak® - Sample Distribution by Crop

kynetec

Row Crops (N)

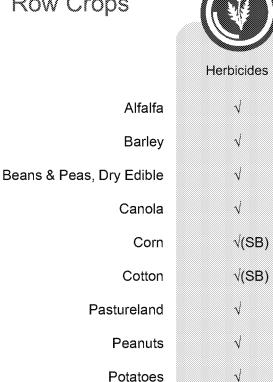


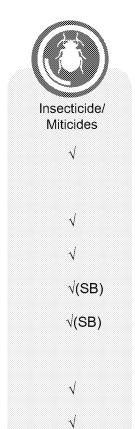
Specialty Crops (%Total Acres)

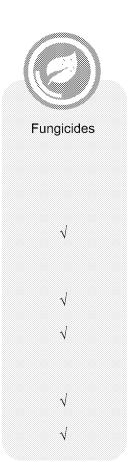


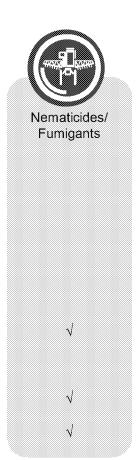
kynetec

Row Crops









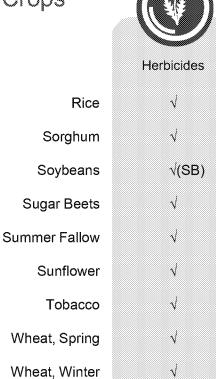


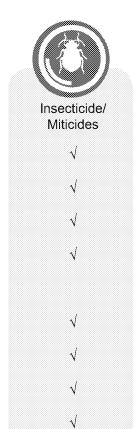
Harvest Aids

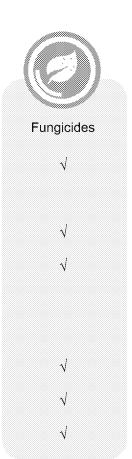
SB = Seed Brand Available

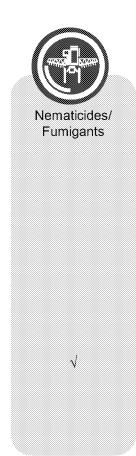
kynetec

Row Crops











Growth Regulators/ Harvest Aids

 $\sqrt{}$

SB = Seed Brand Available

kynetec

Fruits

Berries: Caneberries, Strawberries

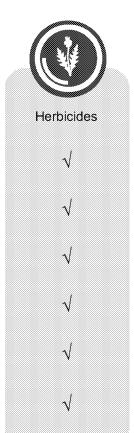
Citrus: Grapefruit, Lemons, Oranges

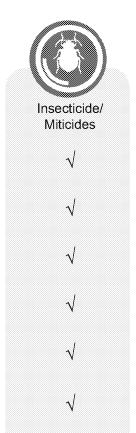
Grapevines: Raisin, Table, Wine

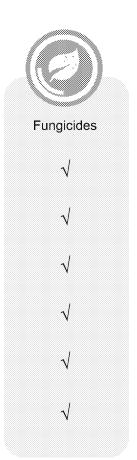
Melons: Cantaloupe, Watermelon

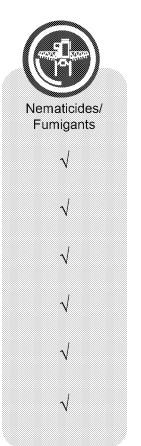
Pome Fruit: Apples, Pears

Stone Fruit: Apricots, Cherries, Peaches, Plum/Prunes











(Cherries only)

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Nuts and Veg

Nuts: Almonds, Filberts, Pecans, Pistachios, English Walnuts

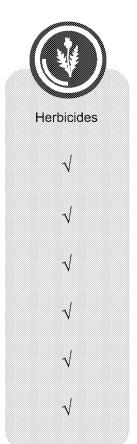
Bulb Vegetables: Garlic, Onion

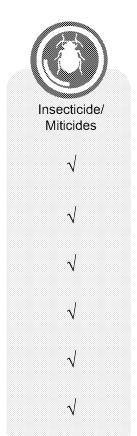
Cole-Brassica: Broccoli, Cabbage, Cauliflower

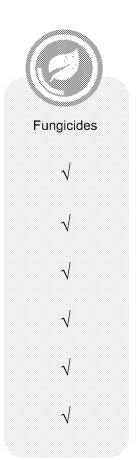
Cucurbits: Cucumber, Pumpkin, Squash

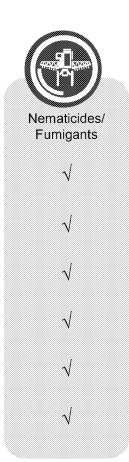
Fruiting Vegetables: Peppers, Tomatoes

Leafy Vegetables: Celery, Lettuce, Spinach











√ (Tomatoes only)

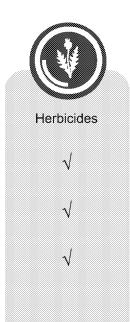
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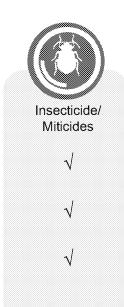
Vegetables

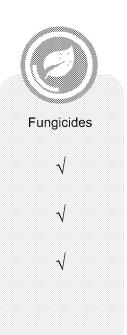
Legumes: Green Peas, Lima Beans, Beans*

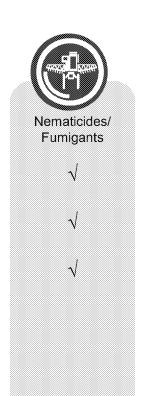
Roots & Tubers: Carrots

Other: Artichokes, Asparagus, Sweet Corn











*Beans includes snap, bush, pole, and string beans

AgroTrak® Axes & Measures

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Standard

Active Ingredient

Application Method

Brand

Brands in Tank

Company

Crop

Formulation

Geography (County, CRD, FIPS, State)

Pest

Pesticide Type

Product

Product Pest Complex

Respondent ID

Ranges:

Acres Grown

Product Rate

Unit Price

Units

Weed Class

Year



(a) Selectivations

Application Timing⁴

Crop Stage⁵

Crop Type4

Number Times Applied³

Number of Trips³

Pest Resistance²

Resistance Management²

Seed Trait1

Seed Trait Collapsed1

Seed Company Brand^{1,7}

Sequence³

Sequence Pest Complex³

Soil/Foliar4

Tillage Type¹

Timing Pre/Post⁴

Who Applied4

Kongres Additions

Burndown Brands

Chemical Class

Chemical Subclass

Chemical Subclass 2

Chewing Sucking Insects

Fungi/ Disease

Glyphosate Brands

Herbicide Site of Action

Insects

Insecticide vs Miticide

IRAC Subclass

Nematicide vs Fumigant

Number of A.I.

OMRI Products

Product Chemistry

⁶ Provided in Excel for Specialty Crops upon request

Residual Contact

Single vs Premix

Weeds

⁵ Specialty Crop Only



¹ Corn, Cotton & Soybeans

- ² Canola, Corn, Cotton, Soybeans & Sugar Beets
- ³ Corn, Cotton, Soybeans, Spring Wheat & Winter Wheat ⁴ Row Crop Only
- * Roundup Equivalent Gallon

Optional Insight Tool for Purchase

Measures

Al Avg. Cost/Base Area³

Al Avg. Rate

Al Value

Al Volume

Approx. BAT by Active Ingredient⁶

Avg. Cost/Base Area³

Al Avg. Cost/Total Area

Avg. Cost/Total Area

Avg. Number of Apps³

Avg. Product Price

Avg. Product Rate.

Base Area Treated³

Base Area Treated (Historical)⁴

Crop Area Grown

Expenditures

Expenditures REG*

Pesticide Type BAT

Pounds Al

Product Amt. Used

Product Amt. Used REG*

Product Base Acres Treated⁶

Projected Farms

Sample Farms

Total Area Treated

Tractor Area Treated

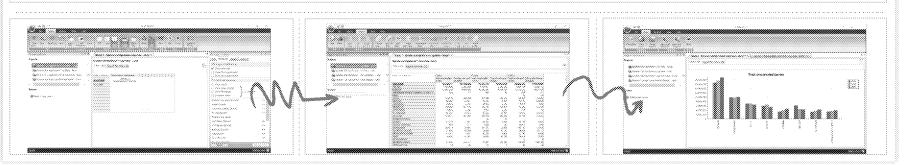
Our proprietary data delivery system…**i-map™**… is an intuitive and powerful data analysis tool

kynetec





- Utilizes a simple grid system to build a row and column query.
- Results delivered in spreadsheet style and exportable to Excel and PowerPoint.
- Geo-coded data enable results to be displayed on a map with a single click, and enable user-defined areas (e.g., sales territories, climate zones, distributor territories)
- Additional mapping layers can be built into the software (e.g., retailer locations)
- Fast and easy database updates over the internet.
- Countless opportunities for data analyses.



50 years of marketing research experience along with 25 years of analytical software development combined to greate I-mapth

clearer vision smarter decision



AgroTrak™ Quality Management Plan

The purpose of this plan is to describe the procedures and quality control measures associated with production of the AgroTrakTM series of studies. This plan also provides, as follows, a generalized description of the quality policies and procedures to be carried out for each of the various survey collection and processing functions included in the overall production of AgroTrakTM.

Sample/Study Design and Measurement

A sample/study design is prepared with a desired optimum sample size and acreage response by state, CRD, and county for each crop included in the study. Desired sample sizes by size of crop are developed along with estimates of available sample by geography and size of operation. Estimates of available sample are developed for (1) respondents participating in a previous time period, (2) appropriate sample available on the Kynetec USA Sample Database, and (3) required sample from external lists. In order to enhance the usefulness and accuracy of tracking studies, a sufficient level of participation by respondents also participating in a previous reporting period is required to improve the accuracy of change in reported data between periods. In order to achieve this objective, guidelines for percent of respondents also participating in the previous reporting period are established.

The origin for potential respondents for AgroTrak™ comes from a variety of sources. The principal source is from broad based lists of agricultural producers. These include government lists from the USDA and the FSA, agricultural publication subscription lists, agricultural association lists, and other sources. An important objective is to use multiple sources for development of the sample base in order to improve the probability that all qualified respondents have a chance to enter the sample. Great care is established to review each list before use in order to eliminate the introduction of any significant bias.

The Kynetec USA Sample Database is made up of respondents who have participated in past Kynetec USA studies. This database is kept current with information from past surveys showing a description of the farming operation. The Kynetec USA Sample Database is especially useful in conducting tracking studies because of the need for measuring change between reporting periods.

Other groups of respondents, such as consultants and PCAs, are used as a source of grower level information. These sources of information are used where access to quality information on product use is superior to grower level reporting or where cost savings can be achieved while maintaining required accuracy.



Instructions and procedures are prepared for data collection by use of a Computer Assisted Telephone Interview (CATI) system which will allow for an efficient and reliable carryout of the study/sample design.

A system of "count programs" has been developed to monitor the data collection response by the criteria established in the sample design. These reports are used to manage the available sample to better achieve an optimum carryout of the sample design. The management of the data collection response will concentrate on the following:

- Allocation of sample respondents and acreage by state, CRD, and county compared to the sample design
- Percent of respondents reporting in both current and previous reporting periods
- Allocation of sample by acreage size compared to the sample design
- Allocation of sample and acreage by method/mode of data collection (e.g.: primary producers, PCAs, etc.) compared to sample design (Specialty Crop Study only)

Copies of the final count tabulation reflecting the information described above are kept for at least two years to evaluate the effectiveness of carryout of the proposed sample design.

Data Collection—data investigation and verification

The data for the AgroTrak[™] study are collected by a variety of modes of data collection including personal interview, mail, internet and telephone reporting. Data collection by telephone continues to be the principal mode for respondent reporting of agronomic inputs such as pesticide use.

Extensive training of personnel involved with the collection, processing, and quality control of data collected from agricultural producers is carried out. Training classes and quality monitoring information are prepared. Specific written instructions are prepared for the telephone supervisors for monitoring the performance of telephone interviewers and for carryout of the data collection quality standards. Instructions are provided for the following:

- Study objectives
- Callback requirements
- Checklist for review of survey
- Standards for monitoring survey completion



The number of attempts to contact and collect required information from potential respondents is set from 8 to 25 as part of the instructions and procedures for data collection by use of a Computer Assisted Telephone Interview (CATI) system. A sufficiently large number of attempts is required in order to ensure a representative sample and reduce the nonresponse error. The number of contact attempts to be implemented will depend on the source of the sample and anticipated response patterns.

In cases where the response rate is considered below acceptable standards a "refusal conversion" program is implemented for respondents who have refused to participate on the initial contacts. The best of our experienced interviewers are used for this type of function.

Proper carryout of the quality review standards for the initial data collection phase of a project is a very important first step in a project wide quality assurance program.

The next step is a series of electronic data review and verification procedures which check and verify the accuracy, completion level, and internal consistency of collected data. Extensive electronic crosschecks are built into the questionnaires and code lists to identify inconsistent or illogical data. Typical data to be reviewed are:

- Product price information
- Product application rates
- Compatibility between pest and pesticide product
- Product compatibility with cultural practices and method of application or application timing

All telephone collected surveys are recorded for the purpose of further bolstering the data verification process. When respondent responses are considered questionable, from the data electronic review, they are further evaluated by listening to the appropriate respondent recording. The respondent survey recordings also are very useful for interviewer evaluations and training.

An acceptable range of prices and application rates are established for each product formulation. Label rates, patterns of historical use and method of applications, e.g., brand, spot treatments, are used to establish the range for acceptable application rates.

Upon identification of questionable or unacceptable data the problem questionnaires are thoroughly reviewed by Kynetec USA analysts and corrective action is taken if required.



Missing Data—Imputation

In the planning phase of each project the policies for treatment of missing data are addressed. Will missing data be allowed for any of the questions on the questionnaire schedule and if so will there be a need to impute the missing estimates for selected respondents. At the same time, the questions on the survey which require an answer also must be identified and procedures established for processing.

For both types of item nonresponse described, re-contact of the respondent to collect the required information can be productive in many cases depending on the reasons for the missing data on the first contact.

The typical type of data requiring a satisfactory response on the survey are crop acres, acres treated by product formulation, number of applications, and selected other information. If this information is not available, the survey is rejected.

For each survey with an item requiring imputation, a hot-deck procedure is carried out by selecting a "donor" survey among the completed surveys by determining similarity based on demographic and/or survey answers. The donor information is then used to impute the missing value.

Universe Construction and Weighting

The sampling process used for $AgroTrak^{TM}$ studies employ a disproportionate sampling scheme where the larger agricultural producers are over sampled in order to increase data accuracy. To adjust and correct for possible bias associated with over representation of certain segments of the sample and to extrapolate the respondent data to represent the total crop growing population a series of weights are applied to the respondent data.

Survey crop data are projected at the state and/or CRD level and represent the total universe of crop growers in the geographies under study. The survey projection process employs a multiple regression procedure for expanding the data to universe totals.

In order for the weighting process to be effective, accurate estimates of the universe totals to be used in the analysis are required. Information on number of crop farms and acreage by state and county, which is typically used for this purpose, is available from the Census of Agriculture and various USDA/NASS reports.

The data available from public sources are very useful in developing the required universe estimates for the weighting process. Additional analysis and adjustment to the



census and USDA estimates is required in many cases because of timing issues. The census is available only every five years and NASS county acreage data are at least one year behind. In some cases, there is limited public data available from the standard sources so adjustments to the standard methods of projecting the survey data are required.

The entire process of projecting the raw survey data to universe totals is a very important function and has a direct influence on the resulting accuracy of study results. This function is carried out by the Kynetec USA analytical staff which specializes in the science and art of weighting syndicated tracking studies.

By proper use of the weighting process we adjust the survey data for selection probabilities as described above. Weighting also helps adjust for the distortion of the sample caused by nonresponse and can reduce survey error by reducing both variance and bias.

Regression Weighting

In many situations, data available from outside sources can be used to improve the estimates derived from a sample survey. Organizations involved in agricultural marketing research in the USA are truly fortunate to have many data series available which are both accurate and very useful as auxiliary variables in the weighting process of a sample survey. The principal sources of auxiliary variables are the Census of Agricultural and the National Agricultural Statistics Service. Two estimating procedures which incorporate the use of auxiliary variables are ratio estimation and regression estimation.

Regression estimation has a distinct advantage in that the regression methodology can handle multiple auxiliary variables believed to be associated or correlated with the survey variables. Auxiliary variables considered for use by Kynetec USA are in general believed to be highly accurate and derived from censuses or large sample sized surveys conducted by federal agencies. The regression weighting software (Weight Gen) currently in use on Kynetec USA syndicated market research studies was developed by the Iowa State University Statistical Laboratory with financial support by Doane Agricultural Services, Inc., now Kynetec USA. Conditional statements concerning regression weighting are:

 The use of a regression weighting procedure allows the use of multiple variables in the weighting process. In most crop weighting situations in AgroTrak[™] (1) farm variables by geography, size, and total are used along with (2) acre variables by geography and total area.



- The weighting process produces a unique weight for each respondent that satisfies the universe totals submitted to the program. The sum of the weights across respondents will equal population totals.
- Standard regression weighting can produce negative weights. The computer algorithm designed for Kynetec USA and used for weighting AgroTrak[™] and other syndicated studies is a modified nonnegative regression system that produces weights that are all greater than zero and fall within a specified range.
- Kynetec USA's regression weighting program has the ability, through the use of
 initial weights and G-WTS, to stabilize the size of weights given to respondents
 who participate in ensuing reporting periods. This feature has been especially
 useful in tracking studies designed for accurate measurement of change in data
 series from period to period.

A more detailed description of the methodology for projecting survey data for AgroTrak[™] crops by use of regression weighting follows:

<u>Method of Projection</u>: For each crop, a system of weighting factors is used to project the sample data to represent the universe of commercial farms and acres. Each respondent receives a "farm weight" and an "acre weight" based upon the relationship between characteristics of the individual respondents and the estimated universe of commercial farms and crop acres planted.

A multiple regression technique is used to construct the weights assigned to each respondent. In most situations the farm weights and the acre weights are identical when acres are included as a variable in the regression equation. A list of the principal steps followed in developing an individual weight for each respondent for a given crop is listed below:

- 1. Respondents are separated into "computation groups." Each group represents an individual state or combination of states.
- 2. The following control variables are used in each "computation group":
 - The number of commercial farms growing the crop by selected geographic areas: i.e., crop reporting district, combination of crop reporting districts, or state totals.
 - The number of acres planted by selected geographic areas: i.e., crop reporting district, combination of crop reporting districts, or state totals.
 - Number of commercial farms by selected crop acreage ranges.
 - Total farm and total acres in the computation group.



- Variables initially included in the regression problem may need to be combined or eliminated because of the inability of the regression problem to solve properly. In most cases this is due to insufficient sample size within the detail of the problem variables.
- 4. Estimates of all categories of commercial farms are developed using the most recent Census of Agriculture information updated to reflect the current year. The current year farm estimates are based on an extensive analysis of trends in census data and additional supportive information. Acreage estimates are supplied annually by the National Agricultural Statistics Service, USDA.
- 5. The weights constructed by the regression procedures are such that the weighted sample estimates are equal to the population totals for the variables used to control the weights.

The farm weight is used to project total farms and it also is used to build the acre weight. All information related to acres such as acres planted and unit price use the acre weight. The acre weight is an adjustment made to the farm weight based on: (a) Kynetec USA estimates of individual crop acreage, and (b) projected acres obtained from the sample. The following illustrates this method. The adjustment is carried out by state CRD or state total depending on the computation group. In most cases the adjustment equals a value of 1.0 when acres are included as a variable in the regression equation.

Verification of Study Results

All data deliverables for the AgroTrak $^{\text{TM}}$ studies are posted to the Kynetec USA Web Site for use by subscribing clients. Prior to the final release of each data series an extensive review of tabular combinations of the available data are carried out. Check lists are prepared and utilized to test and verify the review process.

When inconsistent or questionable data or data relationships are observed data search techniques are used to find possible errors whether it is application rates, product price, inappropriate product use or questionable weighting. Significant effort is directed toward comparison of current data with past trends and industry expectations. The relationship between product usage and supporting data are also reviewed. Emerging trends or



unusual variations in a data series are checked out with outside industry experts to help validate their occurrence.

Multiple staff members always are involved in the study results verification process to ensure that "second opinions" are obtained for all questionable or inconsistent data observations.

Feedback from Clients

Kynetec USA encourages feedback from their client base on the usefulness and accuracy of the data and information reported in their AgroTrak™ studies. All information received from clients is held in the strictest of confidence and is used to identify unusual variation or deviation from the data reported in the Kynetec USA studies. For those situations where the deviations between Kynetec USA data and client data are considered extreme and greater than accepted standards for sampling error an expanded level of inquiry is conducted. This type of inquiry includes a detailed look at the procedures used for collection, processing, and weighting the respondent data and may include call-backs for verification of respondent reporting. Statistical reliability estimates are also prepared for the questionable data series to better validate the reasons for reported discrepancies. In those cases where there is sufficient evidence that Kynetec USA has reported and published inaccurate or inappropriate data, Kynetec USA will correct and republish revised data for subscribing clients.

The greatest value of client input concerning the accuracy and value of Kynetec USA syndicated data is to provide a basis for changes in methodology or procedures which improve the accuracy and enhance the usefulness of the Kynetec USA estimates.

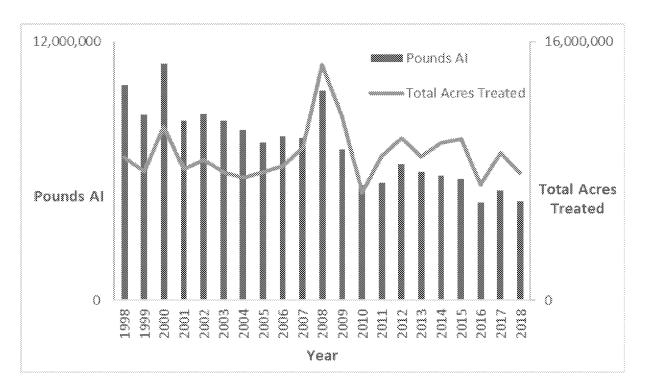


Figure 1. Chlorpyriphos Total Acres Treated and Total Pounds A.I. Applied (1998-2018). (Does not include crops surveyed only by NASS and CDRP, as indicated in Table 1)

Source: Kynetec USA, Inc. 2019. "The AgroTrak® Study from Kynetec USA, Inc." Database Subset: 1998-2018



Cell: A21

Comment: [Threaded comment]

Your version of Excel allows you to read this threaded comment; however, any edits to it will get removed if the file is opened in a newer version of Excel. Learn more: https://go.microsoft.com/fwlink/?linkid=870924

Comment:

Perhaps we should start labeling this figure as agricultural usage

Raw

Table 1. National Chlorpyrifos Agricultural Usage by Crop. Data Averaged Over Reported Years.

Стор
Root and Tuber Vegetables
Sugar Beets
Carrots (Grown for Seed)
Beets (Garden/Table)
Ginseng (Medical)
Radish
Rutabaga
Sweet Potato
Turnips
Bulb Vegetables
Onions
Cole Crops
Cole Crops (excluding Cauliflower and Brussels Sprouts)
Cabbage
Broccoli*
Other Cole Crops
Brussels Sprouts*
Cauliflower*
Legume Vegetables
Dry Beans/Peas
Beans (Snap, Bush, Pole, Strin
Peas (Fresh/Green/Sweet)
Soybeans
Fruiting Vegetables
Peppers
Cucurbit Vegetables
Cucumbers
Pumpkins
Fruit and Nut Trees
Almonds*

Data Source	States with Reported Usage	Avg, Annual Pounds Al Applied ^a	Avg. Annual Total Acres Treated ^b	% Applied by Air
+	4	+	+	+
Kynetec (2014-2018)	CA,ID,MI,MN,ND,WY	132,372	195,785	16%
Kynetec (2014-2018)	NR*	NR*	NR*	NR*
**	**	**	**	**
**	**	**	**	**
**	**	**	**	**
**	**	**	**	**
**	**	**	**	**
**	**	**	**	**
+	+	4	+	+
Kynetec (2014-2018)	CA,GA,ID,NY,OR,WA	37,575	39,322	0%
-	4	+	+	-
+ (2014 2019)	+	+	+	+
Kynetec (2014-2018)	CA,MI,NY,WI	2,415	2,614	0%
CADPR (2013-2017) **	CA **	3,087	2,566	 **
CADPR (2013-2017)	CA	988	1,069	
CADPR (2013-2017) CADPR (2013-2017)	CA	216	1,009	
CADPR (2015-2017)	CA	210	190	
+	+	+	+	+
Kynetec (2014-2018)	ID,MI,MN,MT,ND,WA	5,060	13,830	3%
Kynetec (2014-2018)	OR	1,459	1,632	0%
Kynetec (2014-2018)	OR,WA	131	139	0%
Kynetec (2014-2018)	AL,DE,GA,IL,IN,IA,KS, KY,LA,MD,MI,MN,MS, MO,NE,NC,ND,OH,OK,S C,SD,TN,TX,VA,WI	1,220,630	3,296,200	32%
+	+	+	+	+
Kynetec (2014-2018)	AZ,CA,NM	377	377	0%
+	+	+	+	+
Kynetec (2014-2018)	CA,MI	133	529	1%
Kynetec (2014-2018)	NY,WI	37	63	0%
CA DRD (2012) 2017)	+	4	150.001	+
CADPR (2013-2017)	CA	278,130	150,981	

Avg. Single AI	Max Single
Rate	Labeled Rate lb/a
	Full Crop Group
+	Not Registered
0.676	2.0
NR*	0.9
**	1.9
	2,0
**	(MI and WI only)
**	3.0
**	2.4
**	2.1
**	2.3
	Full Crop Group
	Not Registered
0,956	1.0
+	Full Crop Group
	Not Registered
+	2.0
0.924	2.0
1.000	2.0
**	2.0
0.962	2.3
0.705	2.3
#	2.2 (Soybeans)
	L0 (All Others)
0.366	1.0
0.894	1.0
1	1.0
0.370	2.2
0,570	24 , 22
+	Full Crop Group
1.000	Not Registered
1.000	1.0
4	Fall Crop Group
0.251	Not Registered
0.251 0.584	(seed only) (seed only)
0,364	,
	Full Crop Group
	Not Registered
	Applications below
+	are for bearing trees
	(Non-bearing trees
	have a max single
	rate of 4.0)
1.879	4.0

Rounded

Table 1. National Chlorpyrifos Agricultural Usage by Crop. Data Averaged Over Reported Years.

Table 1. National Caro, pyrios rigiteditural esage by Crop. Data riverag	,
Crop	Data Source
Root and Tuber Vegetables	+
Sugar Beets	Kynetec (2014-2018)
Carrots (Grown for Seed)	Kynetec (2014-2018)
Beets (Garden/Table)	**
Ginseng (Medical)	**
Radish	**
Rutabaga	**
Sweet Potato	**
Turnips	**
Bulb Vegetables	+
Onions	Kynetec (2014-2018)
Cale Craps	+
Cole Crops (excluding Cauliflower and Brussels Sprouts)	+
Cabbage	Kynetec (2014-2018)
Broccoli*	CADPR (2013-2017)
Other Cole Crops	**
Brussels Sprouts*	CADPR (2013-2017)
Cauliflower*	CADPR (2013-2017)
Legume Vegetables	+
Dry Beans/Peas	Kynetec (2014-2018)
Beans (Snap, Bush, Pole, Strin	Kynetec (2014-2018)
Peas (Fresh/Green/Sweet)	Kynetec (2014-2018)
Soybeans	Kynetec (2014-2018)
Fruiting Vegetables	+
Peppers	Kynetec (2014-2018)
Cucurbit Vegetables	+
Cucumbers	Kynetec (2014-2018)
Pumpkins	Kynetec (2014-2018)
Fruit and Nut Trees	
Almonds*	CADPR (2013-2017)

States with Reported	Avg. Annual	Avg. Annual Total	% Applied by	Avg. Single AI	Max Single
Usage	Pounds Al Applied ^a	Acres Treated ^b	Air	Rate	Labeled Rate lb/a ^c
+	+	+	+	+	Full Crop Group Not Registered
CA,ID,MI,MN,ND,WY	100,000	200,000	20%	0.676	2.0
NR*	NR*	NR*	NR*	NR*	0.9
**	**	**	**	**	1.9
**	**	**	**	**	2.0 (MI and WI only)
**	华华	**	**	**	3.0
**	**	**	**	**	2.4
**	**	**	**	**	2.1
**	**	**	**	**	2.3
+	+	+	+	+	Full Crop Group Not Registered
CA,GA,ID,NY,OR,WA	40,000	40,000	0%	0.956	1.0
+	+	+	+	+	Full Crop Group Not Registered
+	+	+	+	+	2.0
CA,MI,NY,WI	2,000	3,000	0%	0.924	2.0
CA	3,000	3,000		1.000	2.0
卡本	**	**	**	**	2.0
CA	1,000	1,000		0.962	2.3
CA	< 500	< 500		0.705	2.3
+	÷	Ŧ.	+	- 4	2.2 (Soybeans) 1.0 (All Others)
ID,MI,MN,MT,ND,WA	5,000	10,000	5%	0.366	1.0
OR	1,000	2,000	0%	0.894	1.0
OR,WA	<500	<500	0%	1	1.0
AL,DE,GA,IL,IN,IA,KS, KY,LA,MD,MI,MN,MS, MO,NE,NC,ND,OH,OK,S C,SD,TN,TX,VA,WI	1,200,000	3,300,000	35%	0.370	2.2
+	+	+	+	+	Full Crop Group Not Registered
AZ,CA,NM	< 500	<500	0%	1.000	1.0
+	+	+	+	+	Full Crop Group Not Registered
CA,MI	< 500	500	<1%	0.251	(seed only)
NY,WI	< 500	< 500	0%	0.584	(seed only)
+	+	+	+		Full Crop Group Not Registered Applications below are for bearing trees (Non-bearing trees have a max single rate of 4.0)
CA	300,000	200,000		1.879	4.0

Apples
Cherries
Citrus
Grapefruit
Lemons*
Oranges
Tangelos
Tangerines
Figs*
Hazelnuts
Nectarines*
Peaches
Pears
Pecans
Plums/Prunes*
Walnuts
Pincapple
Berries and Small Fruit
Grapes (Table and Raisin)*
Grapes (Wine)*
Strawberries
Cranberries
Cereal Grains
Corn
Field Corn
Sweet Corn
Pop Corn
Sorghum (Milo)
Wheat
Wheat, Spring
Wheat, Winter
Triticale
Grass Forage/Fodder/Hay

Kynetec (2014-2018) CA,MI,NY,NC,OH,OR,P A,VA,WA,WV B,VA,WA,WV B,VA,WA,WV B,VA,WA,WV B,VA,WA,WV B,VA,WA,WV B,VA,WA,WW B,VA,VA,WA,WW B,VA,VA,WA,WW B,VA,VA,WA,WW B,VA,VA,WA,WW B,VA,VA,WA,WW B,VA,VA,WA,WW B,VA,VA,WA,WW B,VA,VA,WA,WW B,VA,VA,WA,WW B,VA,VA,WA,WA,VA,WA,WA,WA,WA,WA,WA,WA,WA,WA,WA,WA,WA,WA				T	
+	Kynetec (2014-2018)	CA,MI,NY,NC,OH,OR,P A,VA,WA,WV	297,287	185,724	1%
Kynetec (2014-2018)	Kynetec (2014-2018)	CA,MI,OR,WA	61,249	40,007	0%
CADPR (2013-2017) CA 35,454 10,615 Kynetec (2014-2018) CA,FL 295,692 145,807 17% NASS (2015) FL (D) CADPR (2013-2017) CA NR* NR* NR* Kynetec (2014-2018) OR 5,488 4,314 5% CADPR (2013-2017) CA 3,128 1,362 Kynetec (2014-2018) CA,CA,CA,CA,MI,NJ,NY,PA SC,TX,WA SC,TX,TX,TX,TX,TX,TX,TX,TX,TX,TX,TX,TX,TX,	+	+		+	+
Kynetec (2014-2018) CA,FL 295,692 145,807 17% NASS (2015) FL (D) NASS (2015) CA, FL 38,100 CADPR (2013-2017) CA NR* NR* NR* Kynetec (2014-2018) OR 5,488 4,314 5% CAPPR (2013-2017) CA NR* NR* Kynetec (2014-2018) OR 5,488 4,314 5% CAPPR (2013-2017) CA NR* NR* Kynetec (2014-2018) AL,CA,GA,MI,NJ,NY,PA SC,TX,WA SC,TX,WA 16,471 9,252 1% Kynetec (2014-2018) GA,LA,NM,OK,TX 111,582 143,095 9% CAPPR (2013-2017) CA 1,790 2,226 Kynetec (2014-2018) CA 331,851 172,110 2% ** ** ** ** ** CADPR (2013-2017) CA 41,769 22,798 CADPR (2013-2017) CA 41,769 22,798 CADPR (2013-2017) CA 41,769 37,614 CADPR (2013-2018) CA,MI,NY,OR,DI,DI,DI,DI,DI,DI,DI,DI,DI,DI,DI,DI,DI,	Kynetec (2014-2018)	FL,TX	68,571	30,351	2%
NASS (2015) FL (D) NASS (2015) CA, FL 38,100	CADPR (2013-2017)	CA	35,454	10,615	
NASS (2015) FL (D) NASS (2015) CA, FL 38,100	Kynetec (2014-2018)	CA.FL	295.692	145.807	17%
NASS (2015) CA, FL 38,100 CADPR (2013-2017) CA NR* NR*					
CADPR (2013-2017)		CA, FL	38,100	N AN	
Kynetec (2014-2018) OR			NR*	NR*	
CADPR (2013-2017)	· · · · · · · · · · · · · · · · · · ·	OR	5,488	4,314	5%
Kynetec (2014-2018) SC,TX,WA 20,422 20,944 0% Kynetec (2014-2018) CA,OR,WA 16,471 9,252 11% Kynetec (2014-2018) GA,LA,NM,OK,TX 111,582 143,095 9% CADPR (2013-2017) CA 1,790 2,226 Kynetec (2014-2018) CA 331,851 172,110 2% *** ** ** ** ** + + + + + CADPR (2013-2017) CA 66,612 37,614 CADPR (2013-2017) CA 41,769 22,798 Kynetec (2014-2018) CA,MI,NY,OR,PA 377 363 0% *** ** ** ** ** ** +		CA	3,128	1,362	
Kynetec (2014-2018) SC,TX,WA 20,422 20,944 0% Kynetec (2014-2018) CA,OR,WA 16,471 9,252 11% Kynetec (2014-2018) GA,LA,NM,OK,TX 111,582 143,095 9% CADPR (2013-2017) CA 1,790 2,226 Kynetec (2014-2018) CA 331,851 172,110 2% *** ** ** ** ** + + + + + CADPR (2013-2017) CA 66,612 37,614 CADPR (2013-2017) CA 41,769 22,798 Kynetec (2014-2018) CA,MI,NY,OR,PA 377 363 0% *** ** ** ** ** ** +		AL,CA,GA,MI,NJ,NY,PA	26.422	20.044	007
Kynetec (2014-2018) GA,LA,NM,OK,TX 111,582 143,095 9% CADPR (2013-2017) CA 1,790 2,226 Kynetec (2014-2018) CA 331,851 172,110 2% ** ** ** ** ** ** **	Kynetec (2014-2018)		26,422	20,944	U%
CADPR (2013-2017) CA 1,790 2,226 Kynetec (2014-2018) CA 331,851 172,110 29% ** ** ** ** ** ** ** ** CADPR (2013-2017) CA 66,612 37,614 CADPR (2013-2017) CA 66,612 37,614 CADPR (2013-2017) CA 41,769 22,798 Kynetec (2014-2018) CA,MI,NY,OR,PA 377 363 0% ** ** ** ** ** ** ** ** ** ** ** ** CADPR (2013-2017) CA 41,769 22,798 Kynetec (2014-2018) CA,MI,NY,OR,PA 377 363 0% ** ** ** ** ** Kynetec (2014-2018) CA,MI,NY,OR,PA 377 363 0% ** ** ** ** ** ** Kynetec (2014-2018) CA,MI,NY,OR,PA 377 363 0% ** ** ** ** ** ** Kynetec (2014-2018) CA,FL,IL,MI,MN,NN, NO, NO, NE,NY,NC,ND, OH,OK,PA,SC,SD,TX,V A,WI NE,NY,NC,ND, OH,OK,PA,SC,SD,TX,V A,WI NE,NY,NC,ND, OH,OK,PA,WA,WI ** Kynetec (2014-2018) CA,FL,IL,MI,MN,NY,OH 73,043 79,107 25% ** ** Kynetec (2014-2018) ARC,O,GA,IL,KS,LA,MO NE,OK,TX + + + + + + + + + + + + + + + + + + +	Kynetec (2014-2018)		16,471	9,252	1%
Kynetec (2014-2018) CA 331,851 172,110 2% *** *** *** *** *** + + + + + CADPR (2013-2017) CA 66,612 37,614 CADPR (2013-2017) CA 41,769 22,798 Kynetec (2014-2018) CA,MI,NY,OR,PA 377 363 0% *** ** ** ** ** +	Kynetec (2014-2018)	GA,LA,NM,OK,TX	111,582	143,095	9%
CADPR (2013-2017)	CADPR (2013-2017)	CA	1,790	2,226	
CADPR (2013-2017)		CA	331.851		2%
CADPR (2013-2017) CA 66,612 37,614 CADPR (2013-2017) CA 41,769 22,798 Kynetec (2014-2018) CA,MI,NY,OR,PA 377 363 0% **	***************************************				
CADPR (2013-2017) CA 66,612 37,614 CADPR (2013-2017) CA 41,769 22,798 Kynetec (2014-2018) CA,MI,NY,OR,PA 377 363 0% **					
CADPR (2013-2017)	+	+	+	+	+
Kynetec (2014-2018) CA,MI,NY,OR,PA 377 363 0% *** ** ** ** ** + <td>CADPR (2013-2017)</td> <td>CA</td> <td>66,612</td> <td>37,614</td> <td></td>	CADPR (2013-2017)	CA	66,612	37,614	
**	CADPR (2013-2017)	CA	41,769	22,798	
**	Kynetec (2014-2018)	CA MI NY OR PA	377	363	0%
AL,AR,CA,CO,GA,ID,IL, IN,IA,KS,KY,MD,MI,MN ,MS,MO,NE,NY,NC,ND, OH,OK,PA,SC,SD,TX,V A,WI					
AL,AR,CA,CO,GA,ID,IL, IN,IA,KS,KY,MD,MI,MN ,MS,MO,NE,NY,NC,ND, OH,OK,PA,SC,SD,TX,V A,WI	+	+	+	+	+
Kynetec (2014-2018) IN,IA,KS,KY,MD,MI,MN ,MS,MO,NE,NY,NC,ND, OH,OK,PA,SC,SD,TX,V A,WI 536,484 890,021 41% Kynetec (2014-2018) CA,FL,IL,MI,MN,NY,OH ,OR,PA,WA,WI 73,043 79,107 25% Kynetec (2014-2018) ** ** ** ** Kynetec (2014-2018) AR,CO,GA,IL,KS,LA,MO ,NE,OK,TX 59,184 120,180 44% + + + + + + Kynetec (2014-2018) ID,MN,MT,ND,SD,WA 241,448 684,913 15% Kynetec (2014-2018) ,NM,NC,ND,OK,OR,SD, TX,WA 233,536 714,048 20% ** ** ** ** **	+	+	+	+	+
Kynetec (2014-2018) ,OR,PA,WA,WI 73,043 79,107 25% ** ** ** ** ** Kynetec (2014-2018) AR,CO,GA,IL,KS,LA,MO,NE,OK,TX 59,184 120,180 44% + + + + + + + Kynetec (2014-2018) ID,MN,MT,ND,SD,WA 241,448 684,913 15% CA,CO,ID,KS,MI,MO,NE CA,CO,ID,KS,MI,MO,NE 714,048 20% TX,WA ** ** ** **	Kynetec (2014-2018)	IN,IA,KS,KY,MD,MI,MN ,MS,MO,NE,NY,NC,ND, OH,OK,PA,SC,SD,TX,V	536,484	890,021	41%
Kynetec (2014-2018) AR,CO,GA,IL,KS,LA,MO,NE,OK,TX 59,184 120,180 44% + + + + + + + Kynetec (2014-2018) ID,MN,MT,ND,SD,WA 241,448 684,913 15% CA,CO,ID,KS,MI,MO,NE CA,CO,ID,KS,MI,MO,NE 714,048 20% Kynetec (2014-2018) ,NM,NC,ND,OK,OR,SD,TX,WA 233,536 714,048 20% ** ** ** ** **	``		ŕ	· ·	
Kynetec (2014-2018) ,NE,OK,TX 59,184 120,180 44% + + + + + + Kynetec (2014-2018) ID,MN,MT,ND,SD,WA 241,448 684,913 15% CA,CO,ID,KS,MI,MO,NE CA,CO,ID,KS,MI,MO,NE 714,048 20% Kynetec (2014-2018) ,NM,NC,ND,OK,OR,SD, 233,536 714,048 20% ** ** ** ** **	**		**	**	**
Kynetec (2014-2018) ID,MN,MT,ND,SD,WA 241,448 684,913 15% CA,CO,ID,KS,MI,MO,NE ,NM,NC,ND,OK,OR,SD, 233,536 714,048 20% TX,WA ** ** ** ** **					
Kynetec (2014-2018)		<u></u>			<u> </u>
Kynetec (2014-2018) ,NM,NC,ND,OK,OR,SD, 233,536 714,048 20% ** ** ** ** ** **	Kynetec (2014-2018)		241,448	684,913	15%
** ** ** **	Kynetec (2014-2018)	,NM,NC,ND,OK,OR,SD,	233,536	714,048	20%
**	**		**	**	**
	**	**	**	**	**

	r
1.601	2.0
	4.0 (tart cherry
1,531	only) 2.5 (sweet
1,001	chery)
+	
	6.0
2.259	6.0
2,916	6.0
2.028	6.0
(D)	6.0
1.739	6.0
NR*	2.0
1.272	2.0
1.687	3.0
1.007	
1.262	3.0
1.780	2.0
0.780	4.3
1.915	2.5
1.928	4.0
**	2.0
	Full Crop Group
+	Not Registered
	2.25 (east of the
	continental divide,
1.879	CO, ID, and WA);
	2.0 (CA)
	2.25 (east of the
	continental divide,
1.879	CO, ID, and WA);
	2.0 (CA)
	2.0 (CA)
1.038	2.0
**	1.5
	Full Crop Group
+	Not Registered
+	3.0
0.603	3.0
	_
0.923	3.0
**	3.0
0.492	
	3.3
	3.3
- <u></u> -	4.0
+ 0.353	4.0 4.0
- <u></u> -	4.0
+ 0.353 0.327	4.0 4.0 4.0
+ 0.353 0.327 **	4.0 4.0 4.0 (seed only)
+ 0.353 0.327	4.0 4.0 4.0

Apples	Kynetec (2014-2018)
Cherries	Kynetec (2014-2018)
Citrus	+
Grapefruit	Kynetec (2014-2018)
Lemons*	CADPR (2013-2017)
Oranges	Kynetec (2014-2018)
Tangelos	NASS (2015)
Tangerines	NASS (2015)
Figs*	CADPR (2013-2017)
Hazelnuts	Kynetec (2014-2018)
Nectarines*	CADPR (2013-2017)
Peaches	Kynetec (2014-2018)
Pears	Kynetec (2014-2018)
Pecans	Kynetec (2014-2018)
Plums/Prunes*	CADPR (2013-2017)
Walnuts	Kynetec (2014-2018)
Pineapple	**
Berries and Small Fruit	+
Grapes (Table and Raisin)*	CADPR (2013-2017)
Grapes (Wine)*	CADPR (2013-2017)
Strawberries	Kynetec (2014-2018)
Cranberries	**
Cereal Grains	+
Corn	+
Field Corn	Kynetec (2014-2018)
Sweet Corn	Kynetec (2014-2018)
Pop Corn	**
Sorghum (Milo)	Kynetec (2014-2018)
Wheat	+
Wheat, Spring	Kynetec (2014-2018)
Wheat, Winter	Kynetec (2014-2018)
Triticale	**
Grass Forage/Fodder/Hay	**

CA,MI,NY,NC,OH,OR,P A,VA,WA,WV	300,000	200,000	<2.5%	1.601	2.0
					4.0 (tart cherry
CA,MI,OR,WA	60,000	40,000	<1%	1,531	only) 2.5 (sweet
- , ,- ,	,	,		-	chery)
+	+	+	-4-	4	6.0
FL,TX	70,000	30,000	<2.5%	2.259	6.0
CA	40,000	10,000		2.916	6.0
<u>CA,FL</u>	300,000	100,000	20%	2.028	6.0
FL Ct. FI	(D)	~~	~~	(D)	6.0
CA, FL	40,000	**	W W	1.739	6.0
CA	NR*	NR*	NR*	NR*	2.0
<u>OR</u>	5,000	4,000	10%	1.272	2.0
CA	3,000	1,000		1.687	3.0
AL,CA,GA,MI,NJ,NY,PA	30,000	20,000	0%	1.262	3.0
,SC,TX,WA		-			
CA,OR,WA	20,000	9,000	<1%	1.780	2.0
GA,LA,NM,OK,TX	100,000	100,000	10%	0.780	4.3
CA	2,000	2,000		1.915	2.5
CA	300,000	200,000	<2.5%	1.928	4.0
**	**	**	**	**	2,0
					Full Crop Group
+	+	÷	+	F	Not Registered
					2.25 (east of the
					continental divide,
CA	70,000	40,000		1.879	CO, ID, and WA);
					2.0 (CA)
					2.25 (east of the
					continental divide,
CA	40,000	20,000		1.879	
		·			CO, ID, and WA);
					2.0 (CA)
CA,MI,NY,OR,PA	< 500	< 500	0%	1.038	2.0
**	**	**	**	**	1.5
					Full Crop Group
+	+	+	+	4	Not Registered
+	+	+	+	+	3.0
AL,AR,CA,CO,GA,ID,IL,			***************************************	***************************************	
IN,IA,KS,KY,MD,MI,MN					
,MS,MO,NE,NY,NC,ND,	500,000	900,000	45%	0.603	3.0
OH,OK,PA,SC,SD,TX,V	500,000	700,000	1570	0.003	5.0
A,WI CA,FL,IL,MI,MN,NY,OH					
	70,000	80,000	30%	0.923	3.0
OR,PA,WA,WI	**	**	**	**	3.0
AR,CO,GA,IL,KS,LA,MO	•			•	3.0
	60,000	100,000	45%	0.492	3,3
,NE,OK,TX		+	+	+	4.0
+ + + + + + + + + + + + + + + + + + +	+	<u>'</u>			4.0
ID,MN,MT,ND,SD,WA	200,000	700,000	15%	0.353	4.0
CA,CO,ID,KS,MI,MO,NE	200 000	# ^^ ^^	2.707		
,NM,NC,ND,OK,OR,SD,	200,000	700,000	25%	0.327	4.0
TX,WA					
**	**	**	**	**	(seed only)
**	**	**	本本	**	1.0

Non-Grass Animal Feeds			
Alfalfa			
Clover (Grown for Seed) Oil Seed Group			
Cotton			
Sunflowers			
Stalk, Stem, and Leaf Petiole Vegetable Group			
Asparagus			
Misc Crops			
Peanuts			
Tobacco			
Mint (Peppermint and Spearmint)	***************************************	 	

+	+	+	+	+
Kynetec (2014-2018)	AZ,CA,CO,ID,IL,IN,IA,K S,KY,MI,MN,MO,MT,NE ,NV,NM,ND,OH,OK,OR, PA,SD,TX,UT,VA,WA,W I.WY	639,929	1,232,215	18%
**	**	**	**	**
+	+	+	+	+
Kynetec (2014-2018)	AL,AZ,CA,GA,KS,LA,M S,MO,NC,OK,SC,TX	67,191	214,454	9%
Kynetec (2014-2018)	CO,KS,MN,NE,ND,SD,T X	88,040	201,560	71%
+	+	+	÷	#
Kynetec (2014-2018)	CA,MI	13,285	13,887	2%
+	+	+	+	+
Kynetec (2014-2018)	AL,FL,GA,NC,TX,VA	164,754	88,331	0%
Kynetec (2014-2018)	GA,KY,NC,PA,SC,TN,V A	52,670	49,463	0%
**	**	**	**	**

	Notes
AMRD (YEAR-YEAR)	Agricultural usage surveyed by market research firm(s)
NASS (YEAR)	Surveyed by United States Department of Agriculture National Agricultural Statistics Se
Cal DPR (YEAR)	Surveyed by the California Department of Pesticide Regulation. Over than 80% of crop:
a	The pounds AI displayed in this document may differ from those displayed in the SLUA
b	of acres treated as some acres are treated more than once
c	Max labeled rate from APPENDIX 1-3. CYP Master Use Table
*	California crop. Over than 80% of crop grown in California
4	See constituent crops below.
NR*	Surveyed by the indicated source in the years listed, but no usage reported.
**	Site not surveyed at national level
(S)	periodically used by a small number of users

+	Full Crop Group Not Registered
0.519	1.0
**	1.9
+	Full Crop Group Not Registered
0.313	1.0
0.437	2.0
+ 0.957	Full Crop Group Not Registered 1.5 Full Crop Group
1.865	Not Registered 4.0
1.065	2.0
**	2.0

rvice
grown in
and other BEAD
stimate the number

TS OTHY
*

Non-Grass Animal Feeds	+
Alfalfa	Kynetec (2014-2018)
Clover (Grown for Seed)	**
Oil Seed Group	+
Cotton	Kynetec (2014-2018)
Sunflowers	Kynetec (2014-2018)
Stalk, Stem, and Leaf Petiole Vegetable Group	+
Asparagus	Kynetec (2014-2018)
Misc Crops	+
Peanuts	Kynetec (2014-2018)
Tobacco	Kynetec (2014-2018)
Mint (Peppermint and Spearmint)	**

AMRD (YEAR-YEAR)
NASS (YEAR)
Cal DPR (YEAR)
a
b
c
*
+
NR*
**
(S)

+	+	+	+	+	Full Crop Group Not Registered
AZ,CA,CO,ID,IL,IN,IA,K S,KY,MI,MN,MO,MT,NE ,NV,NM,ND,OH,OK,OR, PA,SD,TX,UT,VA,WA,W I,WY	600,000	1,200,000	20%	0.519	1.0
**	**	**	半米	**	1.9
+	+	+	+	į.	Fall Crop Group Not Registered
AL,AZ,CA,GA,KS,LA,M S,MO,NC,OK,SC,TX	70,000	200,000	10%	0.313	1.0
CO,KS,MN,NE,ND,SD,T X	90,000	200,000	75%	0.437	2.0
+	+	+	+	÷	Full Crop Group Not Registered
CA,MI	10,000	10,000	<2.5%	0.957	1.5
+	+	+	+	+	Full Crop Group Not Registered
AL,FL,GA,NC,TX,VA	200,000	90,000	0%	1.865	4.0
GA,KY,NC,PA,SC,TN,V A	50,000	50,000	0%	1.065	2.0
**	**	**	**	**	2.0

Notes
Agricultural usage surveyed by market research firm(s)
Surveyed by United States Department of Agriculture National Agricultural Statistics Service
Surveyed by the California Department of Pesticide Regulation. Over than 80% of crop grown in
The pounds AI displayed in this document may differ from those displayed in the SLUA and other BEAD Total Acres Treated accounts for multiple applications to a single area. This may overestimate the number
of acres treated as some acres are treated more than once
Max labeled rate from APPENDIX 1-3. CYP Master Use Table
California crop. Over than 80% of crop grown in California
See constituent crops below.
Surveyed by the indicated source in the years listed, but no usage reported.
Site not surveyed at national level
insufficient number of reports to establish an estimate. This indicates that the chemical is only

periodically used by a small number of users

Raw

Table 2. National Chlorpyrifos Agricultural Usage by Crop and State. Data Averaged Over Reported Years.

	Стор
Root and Tuber Vegetables	
Sugar Beets	
Beets (Garden/Table)	
Beets (Garden/Table)	
Carrots (Grown for Seed)	
Ginseng (Medical)	
Radish	
Radish	
Rutabaga	
Rutabaga	
Sweet Potato	
Sweet Potato	
Turnips	
Turnips	
Bulb Vegetables	
Onions	
Cole Crops	
Cole Crops (excluding Cauliflower:	and Brussels Sprouts)
Broccoli*	
Brussels Sprouts*	
Cabbage Cabbage	
Cabbage	
Cabbage	
Cabbage	
Cabbage	
Cauliflower*	
Chinese Broccoli	
Chinese Broccoli	
Gai Lon	
Gai Lon	
Napa Cabbage	
Napa Cabbage Napa Cabbage	
Napa Cabbage Napa Cabbage Boy Choy Boy Choy	

Data Source	State +	Avg. Annual Crop Acres Grown [†]	Avg, Annual Total Lbs, Al Applied
Kynetec (2014-2018)	IDAHO	168,400	74,619
Kynetec (2014-2018)	CALIFORNIA	9,900	8,941
Kynetec (2014-2018)	NORTH DAKOTA	214,000	29,029
Kynetec (2014-2018)	WYOMING	31,200	394
Kynetec (2014-2018)	MINNESOTA	431,000	16,325
Kynetec (2014-2018)	MICHIGAN	149,200	3,064
Kynetec (2014-2018)	CO, MT, NE	119,280	NR*
CADPR (2011-2015)	CALIFORNIA (21%)	2,730	53
**	Other States (79%)	10,203	**
Kynetec (2014-2018)	CA, MI, WA, WI	80,006	NR*
**	**	**	**
CADPR (2011-2015)	CALIFORNIA (13%)	1,926	899
**	Other States (87%)	12,941	**
CADPR (2011-2015)	CALIFORNIA (%)		NR*
**			**
	Other States (%)	**	
CADPR (2011-2015)	CALIFORNIA (15%)	18,189	2,830
**	Other States (85%)	107,537	**
CADPR (2011-2015)	CALIFORNIA (9%)	386	50
**	Other States (91%)	3,899	**
W + (2014 2010)	NEWYORK	7.540	-
Kynetec (2014-2018)	NEW YORK	7,540	5,755
Kynetec (2014-2018)	WASHINGTON	22,382 7,180	12,648
Kynetec (2014-2018) Kynetec (2014-2018)	GEORGIA OREGON	19,380	5,509 6,747
Kynetec (2014-2018)	CALIFORNIA	47,080	6,281
Kynetec (2014-2018)	IDAHO	8,020	635
Kynetec (2014-2018)	CO, TX	6,770	NR*
+	+	+	+
+	+	+	+
CADPR (2011-2015)	CALIFORNIA (81%)	104,268	3,087
CADPR (2011-2015)	CALIFORNIA (96%)	7,299	988
Kynetec (2014-2018)	MICHIGAN	3,740	889
Kynetec (2014-2018)	CALIFORNIA	14,840	1,225
Kynetec (2014-2018)	WISCONSIN	4,840	182
Kynetec (2014-2018)	NEW YORK	8,640	119
Kynetec (2014-2018)	AZ, CO, FL, GA, NC, TX	18,780	NR*
CADPR (2011-2015)	CALIFORNIA (82%)	34,369	216
CADPR (2011-2015)	CALIFORNIA (%)		4
**	Other States (%)		**
CADPR (2011-2015)	CALIFORNIA (%)		98
**	Other States (%)		**
CADPR (2011-2015)	CALIFORNIA (%)		151
**	Other States (%)		**
CADPR (2011-2015)	CALIFORNIA (43%)	3,412	441
**	Other States (67%)	4,587	**

Min. Annual PCT	Max. Annual PCT	Avg. Annual PCT	avg sample
+	+	-	
36%	79%	58%	28.6
0%	92%	33%	2.2
11%	23%	16%	8.6
0%	21%	6%	0.6
3% 1%	8% 9%	5% 4%	8.4
NR*	9% NR*	4% NR*	2.8
	0%	0%	
0%	U70 **	U70 **	
NR*	NR*	NR*	
**	**	**	
1%	3%	1%	
**	**	**	
NR*	NR*	NR*	
**	**	**	
6%	15%	10%	
**	**	**	
0%	1%	1%	
**	**	**	
+	+	+	
23%	100%	71%	5.6
0%	85%	57%	8
0%	94%	52%	2.4
3%	62%	35% 14%	8.4
7% 0%	27% 20%	9%	4.6 1.4
NR*	NR*	NR*	1.4
+	+	+	
+	+	+	
0%	0%	0%	
0%	3%	1%	
0%	85%	24%	1.2
0%	48%	10%	1.4
0%	16%	3%	0.2
0%	3%	1%	0.6
NR*	NR*	NR*	
0%	0%	0%	
2%	2%	2%	
**	**	**	
4%	9%	6%	
**	**	**	
0%	1%	0%	
**	1 /0 **	**	
0%	1%	1%	
**	**	**	

Rounded

Table 2. National Chlorpyrifos Agricultural Usage by Crop and State. Data Averaged Over Reported Years.

	Стор
Root and Tuber Vegetables	
Sugar Beets	
Beets (Garden/Table)	
Beets (Garden/Table)	
Carrots (Grown for Seed)	
Ginseng (Medical)	
Radish	
Radish	
Rutabaga	
Rutabaga	
Sweet Potato	
Sweet Potato	
Turnips	
Turnips	
Bulb Vegetables	
Onions	
Cole Crops	
Cole Crops (excluding Cauliflower:	and Brussels Sprouts)
Broccoli*	
Brussels Sprouts*	
Cabbage Cabbage	
Cabbage	
Cabbage	
Cabbage	
Cabbage	
Cauliflower*	
Chinese Broccoli	
Chinese Broccoli	
Gai Lon	
Gai Lon	
Napa Cabbage	
Napa Cabbage Napa Cabbage	
Napa Cabbage Napa Cabbage Boy Choy Boy Choy	

Data Source	State	Avg. Annual Crop	Avg. Annual Total Lbs.	Min, Annual PCT
		Acres Grown [†]	AI Applied	
W (2014-2010)	+	200.000	# # # # # # # # # # # # # # # # # # #	400/
Kynetec (2014-2018)	IDAHO	200,000	70,000	40%
Kynetec (2014-2018)	CALIFORNIA	10,000	9,000	0%
Kynetec (2014-2018)	NORTH DAKOTA	200,000	30,000 <500	15% 0%
Kynetec (2014-2018)	WYOMING MINNESOTA	30,000 400,000	20,000	5%
Kynetec (2014-2018) Kynetec (2014-2018)	MICHIGAN	100,000	3,000	<2.5%
Kynetec (2014-2018) Kynetec (2014-2018)	CO, MT, NE	100,000	NR*	NR*
CADPR (2011-2015)	CALIFORNIA (21%)		<500	<1%
**		3,000	×*	~170 **
	Other States (79%)	10,000		
Kynetec (2014-2018)	CA, MI, WA, WI	80,000	NR*	NR*
**	**	**	**	**
CADPR (2011-2015)	CALIFORNIA (13%)	2,000	900	<1%
**	Other States (87%)	10,000	**	**
CADPR (2011-2015)	CALIFORNIA (%)		NR*	NR*
**	Other States (%)		**	**
CADPR (2011-2015)	CALIFORNIA (15%)	20,000	3,000	10%
**	Other States (85%)	100,000	**	**
CADPR (2011-2015)	CALIFORNIA (9%)	< 500	<500	<1%
**	Other States (91%)	4,000	**	**
-	+	+	+	-
Kynetec (2014-2018)	NEW YORK	8,000	6,000	25%
Kynetec (2014-2018)	WASHINGTON	20,000	10,000	0%
Kynetec (2014-2018)	GEORGIA	7,000	6,000	0%
Kynetec (2014-2018)	OREGON	20,000	7,000	5%
Kynetec (2014-2018)	CALIFORNIA	50,000	6,000	10%
Kynetec (2014-2018)	IDAHO	8,000	600	0%
Kynetec (2014-2018)	CO, TX	7,000	NR*	NR*
-	+	+	-	-
+	+	+	+	+
CADPR (2011-2015)	CALIFORNIA (81%)	100,000	3,000	<1%
CADPR (2011-2015)	CALIFORNIA (96%)	7,000	1,000	<1%
Kynetec (2014-2018)	MICHIGAN	4,000	900	0%
Kynetec (2014-2018)	CALIFORNIA	10,000	1,000	0%
Kynetec (2014-2018)	WISCONSIN	5,000	<500	0%
Kynetec (2014-2018)	NEW YORK	9,000	< 500	0%
X	AZ, CO, FL, GA, NC, TX	20,000	NR*	NR*
CADPR (2011-2015)	CALIFORNIA (82%)	30,000	<500	<1%
CADPR (2011-2015)	CALIFORNIA (%)		<500	<2.5%
**	Other States (%)		**	**
CADPR (2011-2015)	CALIFORNIA (%)		<500	5%
**	Other States (%)		**	**
CADPR (2011-2015)	CALIFORNIA (%)		<500	<1%
**	Other States (%)		**	**
CADPR (2011-2015)	CALIFORNIA (43%)	3,000	<500	<1%
**	Other States (67%)	5,000	**	**
	J. J	-,,,,,,,		

Max. Annual PCT	Avg. Annual PCT	
80%	60%	
95%	35%	
25%	20%	
25%	10%	
10%	10%	
10%	5%	
NR*	NR*	
<2.5%	<1%	
**	**	
NR*	NR*	
**	**	
5%	<2.5%	
**	**	
NR*	NR*	
**	**	
20%	10% **	
<2.5%	<1%	
**	**	
1000/	-	
100%	75%	
85% 95%	60%	
65%	55% 40%	
30%	15%	
20%	10%	
NR*	NR*	
+	+	
+	+	
<2.5%	<1%	
5%	<2.5%	
90%	25%	
50%	10% 5%	
20% 5%	<2.5%	
NR*	~2.5% NR*	
<2.5%	<1%	
<2.5%	<2.5%	
**	**	
10%	10%	
**	1070 **	
<2.5%	<1%	
**	**	
<2.5%	<1%	
**	**	

77

Chinese Greens
Chinese Greens
Collards
Collards
Gai Choy
Gai Choy
Kale
Kale
Kohlrabi
Kohlrabi
Mustard Greens
Mustard Greens
Mizuna
Mizuna
Swiss Chard
Other Cole Crops
Legume Vegetables
Dry Beans/Peas
Beans (Snap, Bush, Pole, Strin
Beans (Snap, Bush, Pole, Strin
Peas (Fresh/Green/Sweet)
Peas (Fresh/Green/Sweet)
Peas (Fresh/Green/Sweet)
Soybeans
Soybeans Section 2015
Soybeans Soybeans
Soybeans
Soyocans
Soybeans Soybeans
Soybeans Soybeans
Soybeans Soybeans Soybeans
Soybeans Soybeans Soybeans Soybeans
Soybeans Soybeans Soybeans Soybeans Soybeans
Soybeans Soybeans Soybeans Soybeans

CADPR (2011-2015)	CALIFORNIA (%)		3
**			**
	Other States (%)		
CADPR (2011-2015)	CALIFORNIA (5%)	633	94
**	Other States (95%)	11,909	**
CADPR (2011-2015)	CALIFORNIA (D%)	(D)	1
**	Other States (%)		**
CADPR (2011-2015)	CALIFORNIA (27%)	4,671	237
**	Other States (27%)	4,576	**
CADPR (2011-2015)	CALIFORNIA (%)		NR*
**			**
	Other States (%)	Wa C	
CADPR (2011-2015)	CALIFORNIA (11%)	736	16.585
**	Other States (89%)	6,189	**
CADPR (2011-2015)	CALIFORNIA (%)		NR*
**	Other States (%)		**
CADPR (2011-2015)	CALIFORNIA (%)		0.696
**	**	**	**
+	+	+	+
Kynetec (2014-2018)	WASHINGTON	262,400	1,360
Kynetec (2014-2018)	NORTH DAKOTA	1,151,000	2,638
Kynetec (2014-2018)	MICHIGAN	220,000	474
Kynetec (2014-2018)	MINNESOTA	168,000	170
Kynetec (2014-2018)	MONTANA	845,400	377
Kynetec (2014-2018)	IDAHO	207,600	41
Kynetec (2014-2018)	CA, CO, NE, NY, TX,	319,400	NR*
	WY	-	
Kynetec (2014-2018)	OREGON	9,803	1,459
Kynetec (2014-2018)	CA, FL, GA, IL, IN, MI,	190,679	NR*
Kynetec (2014-2018)	NY, NC, PA, TN, TX, WI WASHINGTON	37,180	82
Kynetec (2014-2018)	OREGON	18,952	49
Kynetec (2014-2018)	MN, WI	85,440	NR*
Kynetec (2014-2018)	MINNESOTA	7,800,000	489,441
Kynetec (2014-2018)	NORTH DAKOTA	6,300,000	266,610
Kynetec (2014-2018)	TEXAS	150,000	2,408
Kynetec (2014-2018)	GEORGIA	257,000	4,549
Kynetec (2014-2018)	MARYLAND	522,000	16,438
Kynetec (2014-2018)	IOWA	9,940,000	147,358
Kynetec (2014-2018)	INDIANA	5,800,000	96,253
Kynetec (2014-2018)	KANSAS	4,330,000	43,199
Kynetec (2014-2018)	DELAWARE	169,000	1,903
Kynetec (2014-2018)	SOUTH DAKOTA	5,210,000	42,135
Kynetec (2014-2018)	ALABAMA	454,000	2,749
Kynetec (2014-2018)	VIRGINIA	620,000	11,904
Kynetec (2014-2018)	NEBRASKA	5,420,000	33,297
Kynetec (2014-2018)	OKLAHOMA	479,000	911
Kynetec (2014-2018)	ILLINOIS NORTH CAROLINA	10,280,000	34,025 5,822
Kynetec (2014-2018)	NORTH CAROLINA	1,696,000 1,402,000	5,822 2,259
Kynetec (2014-2018) Kynetec (2014-2018)	LOUISIANA MISSOURI	5,630,000	2,239 11,750
Kynetec (2014-2018) Kynetec (2014-2018)	KENTUCKY	1,870,000	1,370
Kynetec (2014-2018) Kynetec (2014-2018)	WISCONSIN	2,020,000	2,124
Kynetec (2014-2018)	MICHIGAN	2,230,000	1,634
Kynetec (2014-2018)	TENNESSEE	1,744,000	1,018
	1 1111111111111111111111111111111111111	1,711,000	1,020

1%	1%	1%	
**	**	**	
1%	3%	2%	
**	**	**	
2%	2%	2%	
**	**	**	
0%	0%	0%	
**	**	**	
NR*	NR*	NR*	
**	**	**	
0%	0%	0% **	
NR*	NR*	NR*	
**	**	**	
0%	0%	0%	
**	**	**	
+	-	-	
0%	9%	2%	0.6
0%	2%	1%	1.8
0%	2%	0%	0.2
0%	1% 0%	0% 0%	0.2 0.2
0%	0%	0%	0.2
			U.E
NR*	NR*	NR*	
5%	26%	15%	7.8
NR*	NR*	NR*	
0%	2%	0%	0.2
0%	1%	0%	0.6
NR*	NR*	NR*	
10%	21%	16%	71.4
1%	21%	11%	25.6
0%	28%	6%	0.2
0%	20%	5%	1.2
3%	25% 6%	5% 4%	0.2
0%	9%	3%	30.2 6.4
0%	6%	3%	10.2
0%	13%	3%	0.2
1%	5%	2%	6.6
0%	12%	2%	0.2
0%	6%	2%	0.4
1%	4%	2%	5.8
0%	2%	1%	0.6
0%	1% 3%	1%	4.6
0%	3%	1% 1%	0.8 0.2
0%	2%	1%	2.2
0%	3%	1%	0.6
0%	1%	0%	1.4
0%	1%	0%	1
0%	1%	0%	0.6

Chinese Greens
Chinese Greens
Collards
Collards
Gai Choy
Gai Choy
Kale
Kale
Kohlrabi
Kohlrabi
Mustard Greens
Mustard Greens
Mizuna
Mizuna
Swiss Chard
Other Cole Crops
Legume Vegetables Dry Beans/Peas
Dry Beans/Peas Dry Bans/Peas
Dry Beans/Peas
Dry Beans/Peas
Dry Beans/Peas
Dry Beans/Peas
Dry Beans/Peas
Beans (Snap, Bush, Pole, Strin
Dean's (Shap, Dush, 1 ofe, Suth
Beans (Snap, Bush, Pole, Strin
Beans (Snap, Bush, Pole, Strin
Beans (Snap, Bush, Pole, Strin Peas (Fresh/Green/Sweet)
Beans (Snap, Bush, Pole, Strin Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Soybeans
Beans (Snap, Bush, Pole, Strin Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet)
Beans (Snap, Bush, Pole, Strin Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Soybeans Soybeans Soybeans
Beans (Snap, Bush, Pole, Strin Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Soybeans Soybeans Soybeans Soybeans
Beans (Snap, Bush, Pole, Strin Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Soybeans Soybeans Soybeans Soybeans Soybeans Soybeans
Beans (Snap, Bush, Pole, Strin Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Soybeans Soybeans Soybeans Soybeans Soybeans Soybeans Soybeans Soybeans
Beans (Snap, Bush, Pole, Strin Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Soybeans
Beans (Snap, Bush, Pole, Strin Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Soybeans
Beans (Snap, Bush, Pole, Strin Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Soybeans
Beans (Snap, Bush, Pole, Strin Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Soybeans
Beans (Snap, Bush, Pole, Strin Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Soybeans
Beans (Snap, Bush, Pole, Strin Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Soybeans
Beans (Snap, Bush, Pole, Strin Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Soybeans
Beans (Snap, Bush, Pole, Strin Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Soybeans
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Beans (Snap, Bush, Pole, Strin Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Soybeans
Beans (Snap, Bush, Pole, Strin Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Soybeans
Beans (Snap, Bush, Pole, Strin Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Peas (Fresh/Green/Sweet) Soybeans Soybeans

CADPR (2011-2015)	CALIFORNIA (%)		<500	<1%
**	Other States (%)		**	**
CADPR (2011-2015)			<500	<1%
**		600	×*	~170 **
	Other States (95%)	10,000		
CADPR (2011-2015)	CALIFORNIA (D%)	(D)	<500	<2.5%
**	Other States (%)		**	**
CADPR (2011-2015)	CALIFORNIA (27%)	5,000	< 500	<1%
**	Other States (27%)	5,000	**	**
CADPR (2011-2015)	CALIFORNIA (%)		NR*	NR*
**	Other States (%)		**	**
CADPR (2011-2015)		700	<500	<1%
**	Other States (89%)	6,000	**	**
CADDD (2011-2015)			NR*	NR*
CADPR (2011-2015) **			NK**	NK* **
	Other States (%)	**		
CADPR (2011-2015)			<500	<1%
**	**	**	**	**
+	+	+	-	+
Kynetec (2014-2018)	WASHINGTON	300,000	1,000	0%
Kynetec (2014-2018)	NORTH DAKOTA	1,200,000	3,000	0%
Kynetec (2014-2018)	MICHIGAN	200,000	<500	0%
Kynetec (2014-2018)	MINNESOTA	200,000	< 500	0%
Kynetec (2014-2018)	MONTANA	800,000	< 500	0%
Kynetec (2014-2018)		200,000	< 500	0%
Kynetec (2014-2018)	CA, CO, NE, NY, TX, WY	300,000	NR*	NR*
Kynetec (2014-2018)		10,000	1,000	10%
Kynetec (2014-2018)	CA, FL, GA, IL, IN, MI, NY, NC, PA, TN, TX, WI	200,000	NR*	NR*
Kynetec (2014-2018)	WASHINGTON	40,000	<500	0%
Kynetec (2014-2018)		20,000	<500	0%
Kynetec (2014-2018)		90,000	NR*	NR*
Kynetec (2014-2018)		7,800,000	500,000	10%
Kynetec (2014-2018)		6,300,000	300,000	<2.5%
Kynetec (2014-2018)		200,000	2,000	0%
Kynetec (2014-2018)		300,000	5,000	0%
Kynetec (2014-2018)		500,000	20,000	0%
Kynetec (2014-2018)	4	9,900,000	100,000	5%
Kynetec (2014-2018)	INDIANA	5,800,000	100,000	<1%
Kynetec (2014-2018)	KANSAS	4,300,000	40,000	0%
Kynetec (2014-2018)	DELAWARE	200,000	2,000	0%
Kynetec (2014-2018)	SOUTH DAKOTA	5,200,000	40,000	<1%
Kynetec (2014-2018)		500,000	3,000	0%
Kynetec (2014-2018)		600,000	10,000	0%
Kynetec (2014-2018)	NEBRASKA	5,400,000	30,000	<1%
Kynetec (2014-2018)		500,000	900	0%
Kynetec (2014-2018)		10,300,000	30,000	0%
Kynetec (2014-2018)		1,700,000	6,000	0%
Kynetec (2014-2018)		1,400,000	2,000	0%
Kynetec (2014-2018)		5,600,000	10,000	0%
Kynetec (2014-2018)		1,900,000	1,000	0%
Kynetec (2014-2018)		2,000,000	2,000	<1%
Kynetec (2014-2018)		2,200,000	2,000	0%
Kynetec (2014-2018)	TENNESSEE	1,700,000	1,000	0%

<2.5%	<1%
**	**
5%	<2.5%
	~2.370 **
**	
<2.5%	<2.5%
**	**
<2.5%	<1%
**	**
NR*	NR*
**	**
<2.5%	<1%
~2.370 **	~1 /0 **
NR*	NR*
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<2.5%	<1%
**	**
+	+
10%	<2.5%
<2.5%	<1%
<2.5%	<1%
<2.5%	<1%
<2.5%	<1%
<2.5%	<1%
NR*	NR*
30%	20%

NR*	NR*
<2.5%	<1%
<2.5%	<1%
NR*	NR*
25%	20%
25%	15%
30%	10%
20%	10%
25%	5%
10% 10%	5% 50/
10%	5% 5%
15%	5%
10%	<2.5%
15%	<2.5%
10%	<2.5%
5%	<2.5%
<2.5%	<1%
<2.5%	<1%
5%	<1%
5%	<1%
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5%	<1%
<2.5%	<1%
<2.5%	<1%
<2.5%	<1%

Soybeans
Soybeans
Soybeans
Soybeans
Fruiting Vegetables
Peppers
Peppers
Peppers
Peppers
Cucurbit Vegetables
Cucumbers
Cucumbers
Cucumbers
Pumpkins
Pumpkins
Pumpkins
Fruit and Nut Trees
Almonds*
Apples
Cherries
Cherries
Cherries
Cherries
Citrus
Grapefruit
Grapefruit
Lemons*
Oranges
Oranges
Tangelos
Tangelos
Tangerines
Tangerines
Tangerines
Kuquat
Kuquat
Lime
Lime
Pomello
Pomello
Figs*

Kynetec (2014-2018)	MISSISSIPPI	2,220,000	797
Kynetec (2014-2018)	OHIO	4,940,000	648
Kynetec (2014-2018)	SOUTH CAROLINA	421,000	30
Kynetec (2014-2018)	AR	3,380,000	NR*
+	+	+	+
Kynetec (2014-2018)	ARIZONA	280	127
Kynetec (2014-2018)	NEW MEXICO	8,260	128
Kynetec (2014-2018)	CALIFORNIA	25,540	122
Kynetec (2014-2018)	FL, GA, NC, NJ, OH, TX	21,580	NR*
-	+	+	+
Kynetec (2014-2018)	MICHIGAN	36,340	132
Kynetec (2014-2018)	CALIFORNIA	9,254	2
Kynetec (2014-2018)	DE, FL, GA, MD, MO, NJ, NC, SC, TX, WA, WI	61,285	NR*
Kynetec (2014-2018)	WISCONSIN	1,954	27
Kynetec (2014-2018)	NEW YORK	4,740	10
	CA, CN, IL, IN, MD,		
Kynetec (2014-2018)	MA, MI, MN, MO, NJ,	65,963	NR*
Kylicice (2014-2018)	NM, OH, OR, PA, TX,	05,905	INIX
	VA, WA		
61575 (2014 2015)			
CADPR (2011-2015)	CALIFORNIA (100%)	935,804	278,130
Kynetec (2014-2018)	NEW YORK	45,967	54,947
Kynetec (2014-2018)	PENNSYLVANIA	22,873	26,959
Kynetec (2014-2018)	MICHIGAN	39,701	34,930
Kynetec (2014-2018)	VIRGINIA	11,593	11,266
Kynetec (2014-2018)	WASHINGTON	174,454	160,879 2,057
Kynetec (2014-2018) Kynetec (2014-2018)	WEST VIRGINIA NORTH CAROLINA	1,906 2,549	2,626
Kynetec (2014-2018)	OHIO	1,863	871
Kynetec (2014-2018)	OREGON	2,302	932
Kynetec (2014-2018)	CALIFORNIA	15,941	1,819
Kynetec (2014-2018)	WASHINGTON	43,174	32,063
Kynetec (2014-2018)	MICHIGAN	43,850	21,637
Kynetec (2014-2018)	OREGON	6,172	6,451
Kynetec (2014-2018)	CALIFORNIA	38,205	1,098
+	+	+	+
Kynetec (2014-2018)	FLORIDA	40,909	47,863
Kynetec (2014-2018)	TEXAS	7,124	20,708
CADPR (2011-2015)	CALIFORNIA (80%)	49,631	35,454
Kynetec (2014-2018)	FLORIDA	411,939	210,978
Kynetec (2014-2018)	CALIFORNIA	173,198	84,714
NASS (2015)	FLORIDA	3,754	(D)
NASS (2015)	AZ	1,094	NR*
NASS (2015)	CALIFORNIA	33,465	37,300
NASS (2015)	FLORIDA	8,122	800
NASS (2015)	AZ	429	NR*
CADPR (2011-2015)	CALIFORNIA (71%)	97	1
**	Other States (29%)	39	**
CADPR (2011-2015)	CALIFORNIA (56%)	460	17
**	Other States (44%)	360	**
CADPR (2011-2015)	CALIFORNIA (%)		290
**	Other States (%)		**
CADPR (2011-2015)	CALIFORNIA (96%)	6,787	NR*
	(C. I.L. (C. ())	<u> </u>	L

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0%	1% 0%	0%	0.2 0.4
0%	0%	0%	0.4
NR*	NR*	NR*	0.2
INK.	NR'	INK.	
0%	45%	9%	0.2
0%	3%	1%	0.2
0%	1%	0%	0.2
NR*	NR*	NR*	U. 2
+	+	+	
0%	6%	1%	0.2
0%	0%	0%	0.2
NR*	NR*	NR*	
0%	4%	2%	0.6
0%	1%	0%	0.2
070	170	070	V: -
NR*	NR*	NR*	
	-	+	
6%	18%	11%	
48%	87%	75%	39.2
44%	88%	68%	21.4
32%	81%	64%	39.8
16%	90%	63%	13.8
45%	57%	50%	62.4
0%	81%	30%	1.2
0%	90%	29%	2
0%	43%	17%	3
0%	40%	8%	0.8
0%	17%	5%	2.2
22%	56%	39%	39.8
16%	60%	35%	22.4
0%	67%	21%	8
0%	4%	1%	1.4
+	+	+	16.3
25% 0%	62% 89%	46% 31%	16.2
15%	22%	18%	1.8
16%	32%	24%	15.6
11%	20%	17%	15.6
	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		40
(D)	(D)	(D)	
NR*	NR*	NR*	
19%	19%	19%	
5%	5%	5%	
NR*	NR*	NR*	
0%	4%	3%	
**	**	**	
1%	6%	3%	
**	**	**	
9%	19%	13%	
**	**	**	
NR*	NR*	NR*	

Soybeans
Soybeans
Soybeans
Soybeans
Fruiting Vegetables
Peppers
Peppers
Peppers
Peppers
Cucurbit Vegetables
Cucumbers
Cucumbers
Cucumbers
Pumpkins
Pumpkins
Pumpkins
Fruit and Nut Trees
Almonds*
Apples
Cherries
Cherries
Cherries
Cherries
Citrus
Grapefruit
Grapefruit
Lemons*
Oranges
Oranges
Tangelos
Tangelos
Tangerines
Tangerines
Tangerines
Kuquat
Kuquat
Lime
Lime
Pomello
Pomello
Figs*

Vzmataa (2014-2019)	Micciccippi	2 200 000	900	00/
Kynetec (2014-2018) Kynetec (2014-2018)	MISSISSIPPI OHIO	2,200,000 4,900,000	800 600	0%
Kynetec (2014-2018)  Kynetec (2014-2018)	SOUTH CAROLINA	400,000	<500	0%
<del></del>	AR	3,400,000	NR*	NR*
Kynetec (2014-2018)	AK	5,400,000	NR*	NK*
Vymataa (2014-2019)	ARIZONA	< 500	< 500	0%
Kynetec (2014-2018)	NEW MEXICO	8,000	<500	0%
Kynetec (2014-2018) Kynetec (2014-2018)	CALIFORNIA	30,000	<500	0%
	FL, GA, NC, NJ, OH, TX	20,000	NR*	NR*
Kyliciec (2014-2018)	TL, UA, NC, NJ, OH, TA	20,000	INK.	INK.
Kynetec (2014-2018)	MICHIGAN	40,000	< 500	0%
Kynetec (2014-2018)  Kynetec (2014-2018)	CALIFORNIA	9,000	<500	0%
Kynetee (2014-2018)		2,000	<u> </u>	070
Kynetec (2014-2018)	DE, FL, GA, MD, MO, NJ, NC, SC, TX, WA, WI	60,000	NR*	NR*
Kynetec (2014-2018)	WISCONSIN	2,000	< 500	0%
Kynetec (2014-2018)	NEW YORK	5,000	< 500	0%
	CA, CN, IL, IN, MD,			
Kynetec (2014-2018)	MA, MI, MN, MO, NJ,	70,000	NR*	NR*
Kynetec (2014-2018)	NM, OH, OR, PA, TX,	70,000	NK*	NK*
	VA, WA			
	+	-	-	-
CADPR (2011-2015)	CALIFORNIA (100%)	900,000	300,000	10%
Kynetec (2014-2018)	NEW YORK	50,000	50,000	50%
Kynetec (2014-2018)	PENNSYLVANIA	20,000	30,000	45%
Kynetec (2014-2018)	MICHIGAN	40,000	30,000	35%
Kynetec (2014-2018)	VIRGINIA	10,000	10,000	20%
Kynetec (2014-2018)	WASHINGTON	200,000	200,000	45%
Kynetec (2014-2018)	WEST VIRGINIA	2,000	2,000	0%
Kynetec (2014-2018)	NORTH CAROLINA	3,000	3,000	0%
Kynetec (2014-2018)	OHIO	2,000	900	0%
Kynetec (2014-2018)	OREGON	2,000	900	0%
Kynetec (2014-2018)	CALIFORNIA	20,000	2,000	0%
Kynetec (2014-2018)	WASHINGTON	40,000	30,000	25%
Kynetec (2014-2018)	MICHIGAN	40,000	20,000	20%
Kynetec (2014-2018)		6,000	6,000	0%
Kynetec (2014-2018)	CALIFORNIA	40,000	1,000	0%
+	+	+	+	+
Kynetec (2014-2018)	FLORIDA	40,000	50,000	30%
Kynetec (2014-2018)	TEXAS	7,000	20,000	0%
CADPR (2011-2015)	CALIFORNIA (80%)	50,000	40,000	15%
Kynetec (2014-2018)	FLORIDA	400,000	200,000	20%
Kynetec (2014-2018)	CALIFORNIA	200,000	80,000	15%
NASS (2015)	FLORIDA	4,000	(D)	(D)
NASS (2015)	AZ	1,000	NR*	NR*
NASS (2015)	CALIFORNIA	30,000	40,000	20%
NASS (2015)	FLORIDA	8,000	800	5%
NASS (2015)	AZ	< 500	NR*	NR*
CADPR (2011-2015)	CALIFORNIA (71%)	< 500	< 500	<1%
**	Other States (29%)	<500	**	**
CADPR (2011-2015)	CALIFORNIA (56%)	< 500	< 500	<1%
**	Other States (44%)	<500	**	**
CADPR (2011-2015)	CALIFORNIA (%)		<500	10%
**	Other States (%)		**	**
		7 000	NR*	
CADPR (2011-2015)	CALIFORNIA (96%)	7,000	NK*	NR*

<2.5%	<1%
<2.5%	<1%
<2.5%	<1%
NR*	NR*
+	+
50%	10%
5%	<1%
<2.5%	<1%
NR*	NR*
IVK.	111.
100/	
10%	<2.5%
<2.5%	<1%
NR*	NR*
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2.070	170
NR*	NR*
-	-
20%	15%
90%	80%
90%	70%
85%	65%
95%	65%
60%	50%
85%	30%
90%	30%
45%	20%
40%	10%
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60%	40%
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5%	<2.5%
+	+
65%	50%
90%	35%
25%	20%
35%	25%
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(D)	(D)
NR*	NR*
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20%	20%
5%	5%
NR*	NR*
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10%	5%
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20%	15%
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NR*	NR*

Hazelnuts
Nectarines*
Peaches
Pears
Pears
Pears
Pecans
Plums*
Prunes*
Walnuts
Pineapple
Berries and Small Fruit
Grapes (Table, Raisin)*
Grapes (Wine)*
Grapes (Wine)* Strawberries
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Vymataa (2014-2019)	OBECON	40,627	5,488
Kynetec (2014-2018) CADPR (2011-2015)	OREGON CALIFORNIA (87%)	19,555	3,128
Kynetec (2014-2018)	SOUTH CAROLINA	16,194	12,787
Kynetec (2014-2018)  Kynetec (2014-2018)	PENNSYLVANIA	4,695	3,485
Kynetec (2014-2018)	GEORGIA	10,060	6,354
Kynetec (2014-2018)	ALABAMA	1,232	478
Kynetec (2014-2018)	WASHINGTON	1,084	1,063
Kynetec (2014-2018)	MICHIGAN	2,926	536
Kynetec (2014-2018)	TEXAS	4,647	529
Kynetec (2014-2018)	NEW JERSEY	4,084	65
Kynetec (2014-2018)	CALIFORNIA	47,273	1,114
Kynetec (2014-2018)	NEW YORK	361	1,114
Kynetec (2014-2018)	CO, IL	956	NR*
Kynetec (2014-2018)	WASHINGTON	22,871	13,053
Kynetec (2014-2018)	CALIFORNIA	11,617	2,980
Kynetec (2014-2018)	OREGON	15,279	438
Kynetec (2014-2018)	GEORGIA	123,415	47,920
Kynetec (2014-2018)  Kynetec (2014-2018)	TEXAS	164,882	50,036
Kynetec (2014-2018)	LOUISIANA	3,243	3,795
Kynetec (2014-2018)	NEW MEXICO	41,331	6,584
Kynetec (2014-2018)	OKLAHOMA	104,307	3,247
Kynetec (2014-2018)	AL, AZ	10,092	NR*
CADPR (2011-2015)	CALIFORNIA (94%)	21,616	980
CADPR (2011-2015)	CALIFORNIA (94%)	61,295	953
Kynetec (2014-2018)	CALIFORNIA	371,866	331,851
**	**	**	**
	+		+
CADPR (2011-2015)	CALIFORNIA (83%)	940,178	66,612
CADPR (2011-2015)	CALIFORNIA (83%)	940,178	41,769
1 CADIN (2011-2013)	I CALII OMNIA 103701	JTU.1/0	
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Kynetec (2014-2018)	OREGON	800	143
Kynetec (2014-2018) Kynetec (2014-2018)	OREGON NEW YORK	800 480	143 86
Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018)	OREGON NEW YORK MICHIGAN	800 480 170	143 86 66
Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)	OREGON NEW YORK MICHIGAN PENNSYLVANIA	800 480 170 164	143 86 66 16
Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)	OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA	800 480 170 164 40,000	143 86 66 16 65
Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)	OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA FL, WA	800 480 170 164 40,000 11,020	143 86 66 16 65 NR*
Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)	OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA FL, WA **	800 480 170 164 40,000 11,020 **	143 86 66 16 65 NR* **
Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  **	OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA FL, WA **	800 480 170 164 40,000 11,020 **	143 86 66 16 65 NR* **
Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018)  ***	OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA FL, WA ***	800 480 170 164 40,000 11,020 **	143 86 66 16 65 NR* **
Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  ***  +  Kynetec (2014-2018)	OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA FL, WA **  + GEORGIA	800 480 170 164 40,000 11,020 ** + 365,000	143 86 66 16 65 NR* ** + 10,734
Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  +  Kynetec (2014-2018)  Kynetec (2014-2018)	OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA FL, WA **  GEORGIA KANSAS	800 480 170 164 40,000 11,020 ** + 365,000 4,730,000	143 86 66 16 65 NR* ** + 10,734 110,011
Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  **  +  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)	OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA FL, WA **  GEORGIA KANSAS OKLAHOMA	800 480 170 164 40,000 11,020 ** + 365,000 4,730,000 336,000	143 86 66 16 65 NR* ** + 10,734 110,011 2,271
Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  **   +  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)	OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA FL, WA ***  GEORGIA KANSAS OKLAHOMA COLORADO	800 480 170 164 40,000 11,020 *** + 365,000 4,730,000 336,000 1,276,000	143 86 66 16 65 NR* ** + 10,734 110,011 2,271 22,683
Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  **   +  Kynetec (2014-2018)	OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA FL, WA **  GEORGIA KANSAS OKLAHOMA COLORADO PENNSYLVANIA	800 480 170 164 40,000 11,020 *** + 365,000 4,730,000 336,000 1,276,000 1,420,000	143 86 66 16 65 NR* ** + 10,734 110,011 2,271 22,683 26,493
Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  ***   +  Kynetec (2014-2018)	OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA FL, WA **  GEORGIA KANSAS OKLAHOMA COLORADO PENNSYLVANIA MARYLAND	800 480 170 164 40,000 11,020 ** + 365,000 4,730,000 336,000 1,276,000 1,420,000 482,000	143 86 66 16 65 NR* ** + 10,734 110,011 2,271 22,683 26,493 3,208
Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  ***   +  Kynetec (2014-2018)	OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA FL, WA **  GEORGIA KANSAS OKLAHOMA COLORADO PENNSYLVANIA MARYLAND VIRGINIA	800 480 170 164 40,000 11,020 ** + 365,000 4,730,000 336,000 1,276,000 1,420,000 482,000 492,000	143 86 66 16 65 NR* ** + 10,734 110,011 2,271 22,683 26,493 3,208 4,843
Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  **   H  Kynetec (2014-2018)	OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA FL, WA **  GEORGIA KANSAS OKLAHOMA COLORADO PENNSYLVANIA MARYLAND VIRGINIA OHIO	800 480 170 164 40,000 11,020 ** + 365,000 4,730,000 336,000 1,276,000 1,420,000 482,000 492,000 3,560,000	143 86 66 16 65 NR* **  + 10,734 110,011 2,271 22,683 26,493 3,208 4,843 46,122
Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  ***  H  Kynetec (2014-2018)	OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA FL, WA **  GEORGIA KANSAS OKLAHOMA COLORADO PENNSYLVANIA MARYLAND VIRGINIA OHIO INDIANA	800 480 170 164 40,000 11,020 ** + 365,000 4,730,000 336,000 1,276,000 1,420,000 482,000 492,000 3,560,000 5,620,000	143 86 66 16 65 NR* **  + 10,734 110,011 2,271 22,683 26,493 3,208 4,843 46,122 48,691
Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  ***  +  Kynetec (2014-2018)	OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA FL, WA **  GEORGIA KANSAS OKLAHOMA COLORADO PENNSYLVANIA MARYLAND VIRGINIA OHIO INDIANA MISSISSIPPI	800 480 170 164 40,000 11,020 *** + 365,000 4,730,000 336,000 1,276,000 1,420,000 482,000 492,000 3,560,000 5,620,000 572,000	143 86 66 16 65 NR* **  10,734 110,011 2,271 22,683 26,493 3,208 4,843 46,122 48,691 4,517
Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  **   +  Kynetec (2014-2018)	OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA FL, WA **  GEORGIA KANSAS OKLAHOMA COLORADO PENNSYLVANIA MARYLAND VIRGINIA OHIO INDIANA MISSISSIPPI NEBRASKA	800 480 170 164 40,000 11,020 *** + 365,000 4,730,000 336,000 1,276,000 1,420,000 482,000 492,000 3,560,000 5,620,000 9,560,000	143 86 66 16 65 NR* **  10,734 110,011 2,271 22,683 26,493 3,208 4,843 46,122 48,691 4,517 50,986
Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  ***   +  Kynetec (2014-2018)	OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA FL, WA **  GEORGIA KANSAS OKLAHOMA COLORADO PENNSYLVANIA MARYLAND VIRGINIA OHIO INDIANA MISSISSIPPI NEBRASKA SOUTH CAROLINA	800 480 170 164 40,000 11,020 ** + 365,000 4,730,000 336,000 1,276,000 1,420,000 482,000 492,000 3,560,000 5,620,000 5,72,000 9,560,000 318,000	143 86 66 16 65 NR* **  + 10,734 110,011 2,271 22,683 26,493 3,208 4,843 46,122 48,691 4,517 50,986 1,676
Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  ***   +  Kynetec (2014-2018)	OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA FL, WA **  GEORGIA KANSAS OKLAHOMA COLORADO PENNSYLVANIA MARYLAND VIRGINIA OHIO INDIANA MISSISSIPPI NEBRASKA SOUTH CAROLINA IOWA	800 480 170 164 40,000 11,020 ** + 365,000 4,730,000 336,000 1,276,000 1,420,000 482,000 492,000 3,560,000 5,620,000 572,000 9,560,000 318,000 13,620,000	143 86 66 16 65 NR* **  + 10,734 110,011 2,271 22,683 26,493 3,208 4,843 46,122 48,691 4,517 50,986 1,676 66,824
Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  ***   **  Kynetec (2014-2018)  **  Kynetec (2014-2018)	OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA FL, WA ***  GEORGIA KANSAS OKLAHOMA COLORADO PENNSYLVANIA MARYLAND VIRGINIA OHIO INDIANA MISSISSIPPI NEBRASKA SOUTH CAROLINA IOWA ALABAMA	800 480 170 164 40,000 11,020 ** + 365,000 4,730,000 336,000 1,276,000 1,420,000 482,000 492,000 3,560,000 5,620,000 572,000 9,560,000 318,000 13,620,000 290,000	143 86 66 16 65 NR* **  + 10,734 110,011 2,271 22,683 26,493 3,208 4,843 46,122 48,691 4,517 50,986 1,676 66,824 437
Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  ***  H  Kynetec (2014-2018)  Kynetec (2014-2018)	OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA FL, WA ***  GEORGIA KANSAS OKLAHOMA COLORADO PENNSYLVANIA MARYLAND VIRGINIA OHIO INDIANA MISSISSIPPI NEBRASKA SOUTH CAROLINA IOWA ALABAMA IILINOIS	800 480 170 164 40,000 11,020 *** + 365,000 4,730,000 336,000 1,276,000 1,276,000 1,420,000 482,000 492,000 3,560,000 5,620,000 572,000 9,560,000 318,000 13,620,000 290,000 11,520,000	143 86 66 16 65 NR* **  10,734 110,011 2,271 22,683 26,493 3,208 4,843 46,122 48,691 4,517 50,986 1,676 66,824 437 74,428
Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)  ***   **  Kynetec (2014-2018)  **  Kynetec (2014-2018)	OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA FL, WA ***  GEORGIA KANSAS OKLAHOMA COLORADO PENNSYLVANIA MARYLAND VIRGINIA OHIO INDIANA MISSISSIPPI NEBRASKA SOUTH CAROLINA IOWA ALABAMA	800 480 170 164 40,000 11,020 ** + 365,000 4,730,000 336,000 1,276,000 1,420,000 482,000 492,000 3,560,000 5,620,000 572,000 9,560,000 318,000 13,620,000 290,000	143 86 66 16 65 NR* **  + 10,734 110,011 2,271 22,683 26,493 3,208 4,843 46,122 48,691 4,517 50,986 1,676 66,824 437

3%     16%     11%       2%     8%     6%       7%     95%     64%       17%     55%     38%       0%     84%     29%       0%     89%     29%       0%     90%     20%       3%     27%     9%       0%     19%     8%       0%     8%     2%       0%     3%     1%       0%     4%     1%       NR*     NR*     NR*	9.6 5 9.4 0.6 0.4 0.8 4.6 1.8
7%         95%         64%           17%         55%         38%           0%         84%         29%           0%         89%         29%           0%         90%         20%           3%         27%         9%           0%         19%         8%           0%         8%         2%           0%         3%         1%           0%         4%         1%           NR*         NR*         NR*	9.4 0.6 0.4 0.8 4.6
17%     55%     38%       0%     84%     29%       0%     89%     29%       0%     90%     20%       3%     27%     9%       0%     19%     8%       0%     8%     2%       0%     3%     1%       0%     4%     1%       NR*     NR*     NR*	9.4 0.6 0.4 0.8 4.6
0%     84%     29%       0%     89%     29%       0%     90%     20%       3%     27%     9%       0%     19%     8%       0%     8%     2%       0%     3%     1%       0%     4%     1%       NR*     NR*     NR*	0.6 0.4 0.8 4.6
0%     84%     29%       0%     89%     29%       0%     90%     20%       3%     27%     9%       0%     19%     8%       0%     8%     2%       0%     3%     1%       0%     4%     1%       NR*     NR*     NR*	0.4 0.8 4.6
0%         89%         29%           0%         90%         20%           3%         27%         9%           0%         19%         8%           0%         8%         2%           0%         3%         1%           0%         4%         1%           NR*         NR*         NR*	0.4 0.8 4.6
0%         90%         20%           3%         27%         9%           0%         19%         8%           0%         8%         2%           0%         3%         1%           0%         4%         1%           NR*         NR*         NR*	0.8 4.6
3%     27%     9%       0%     19%     8%       0%     8%     2%       0%     3%     1%       0%     4%     1%       NR*     NR*     NR*	4.6
0%         19%         8%           0%         8%         2%           0%         3%         1%           0%         4%         1%           NR*         NR*         NR*	
0%         8%         2%           0%         3%         1%           0%         4%         1%           NR*         NR*         NR*	
0%     3%     1%       0%     4%     1%       NR*     NR*     NR*	0.2
0%         4%         1%           NR*         NR*         NR*	1.8
NR* NR* NR*	0.4
	0,1
22% 37% 31%	18
0% 16% 10%	1.2
0% 5% 2%	0.6
14% 43% 27%	11
17% 45% 27% 27% 17% 38% 25%	16.6
17% 58% 23% 23% 0% 59% 12%	
	0.4
0% 30% 9%	1.2
3% 5% 4%	3.6
NR* NR* NR*	
1% 6% 3%	
0% 2% 1%	
14% 47% 31%	79.6
** ** **	
+ + +	
11% 13% 12%	
2% 3% 3%	
0% 27% 7%	0.8
0% 24% 5%	0.4
0% 23% 5%	0.6
0% 10% 2%	0.2
0% 0% 0%	0.2
NR* NR* NR*	
** ** **	
+ + + +	
+ + +	
0% 29% 12%	3.4
2% 8% 5%	
	12.2
1 00/ 1 120/ 1 20/ <b>1</b>	0.4
0% 12% 2%	2.4
0% 4% 2%	2.2
0%         4%         2%           1%         3%         2%	
0%     4%     2%       1%     3%     2%       0%     7%     1%	0.2
0%     4%     2%       1%     3%     2%       0%     7%     1%       0%     3%     1%	0.2 1.2
0%     4%     2%       1%     3%     2%       0%     7%     1%       0%     3%     1%       1%     2%     1%	0.2 1.2 2.4
0%     4%     2%       1%     3%     2%       0%     7%     1%       0%     3%     1%       1%     2%     1%       0%     2%     1%       0%     2%     1%	0.2 1.2 2.4 2.6
0%         4%         2%           1%         3%         2%           0%         7%         1%           0%         3%         1%           1%         2%         1%           0%         2%         1%           0%         2%         1%           0%         4%         1%	0.2 1.2 2.4 2.6 0.8
0%     4%     2%       1%     3%     2%       0%     7%     1%       0%     3%     1%       1%     2%     1%       0%     2%     1%       0%     2%     1%       0%     4%     1%       0%     2%     1%       0%     2%     1%	0.2 1.2 2.4 2.6 0.8 5.6
0%         4%         2%           1%         3%         2%           0%         7%         1%           0%         3%         1%           1%         2%         1%           0%         2%         1%           0%         4%         1%           0%         2%         1%           0%         4%         1%           0%         4%         1%           0%         4%         1%	0.2 1.2 2.4 2.6 0.8 5.6 0.2
0%     4%     2%       1%     3%     2%       0%     7%     1%       0%     3%     1%       1%     2%     1%       0%     2%     1%       0%     4%     1%       0%     2%     1%       0%     4%     1%       0%     4%     1%       0%     4%     1%       0%     4%     1%       0%     1%     1%	0.2 1.2 2.4 2.6 0.8 5.6 0.2 5.8
0%         4%         2%           1%         3%         2%           0%         7%         1%           0%         3%         1%           1%         2%         1%           0%         2%         1%           0%         4%         1%           0%         2%         1%           0%         4%         1%           0%         4%         1%           0%         1%         1%           0%         4%         1%           0%         4%         1%	0.2 1.2 2.4 2.6 0.8 5.6 0.2 5.8
0%         4%         2%           1%         3%         2%           0%         7%         1%           0%         3%         1%           1%         2%         1%           0%         2%         1%           0%         4%         1%           0%         2%         1%           0%         2%         1%           0%         4%         1%           0%         4%         1%           0%         4%         1%           0%         4%         1%           0%         4%         1%           0%         1%         1%           0%         1%         1%	0.2 1.2 2.4 2.6 0.8 5.6 0.2 5.8 0.2 4.6
0%     4%     2%       1%     3%     2%       0%     7%     1%       0%     3%     1%       1%     2%     1%       0%     2%     1%       0%     2%     1%       0%     4%     1%       0%     2%     1%       0%     4%     1%       0%     4%     1%       0%     4%     1%       0%     1%     1%       0%     4%     1%	0.2 1.2 2.4 2.6 0.8 5.6 0.2 5.8

Hazelnuts
riazemuis Nectarines*
Nectarines*
Peaches
Pears
Pears
Pears
Pecans
Plums*
Prunes*
Walnuts
Pineapple
Berries and Small Fruit
Grapes (Table, Raisin)*
Grapes (Wine)*
Grapes (Wine)* Strawberries
Grapes (Wine)* Strawberries Strawberries
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Grapes (Wine)* Strawberries Strawberries Strawberries Strawberries Strawberries Strawberries Strawberries Cranberries Cranberries Cranberries Cranberries Cron Field Corn

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Kynetec (2014-2018)	OREGON	40,000	5,000	5%
CADPR (2011-2015)	CALIFORNIA (87%)	20,000	3,000	<2.5%
Kynetec (2014-2018)	SOUTH CAROLINA	20,000	10,000	10%
Kynetec (2014-2018)	PENNSYLVANIA	5,000	3,000	20%
Kynetec (2014-2018)	GEORGIA	10,000	6,000	0%
Kynetec (2014-2018)	ALABAMA	1,000	< 500	0%
Kynetec (2014-2018)	WASHINGTON	1,000	1,000	0%
Kynetec (2014-2018)	MICHIGAN	3,000	500	5%
Kynetec (2014-2018)	TEXAS	5,000	500	0%
Kynetec (2014-2018)	NEW JERSEY	4,000	< 500	0%
Kynetec (2014-2018)	CALIFORNIA	50,000	1,000	0%
Kynetec (2014-2018)	NEW YORK	< 500	< 500	0%
Kynetec (2014-2018)	CO, IL	1,000	NR*	NR*
Kynetec (2014-2018)	WASHINGTON	20,000	10,000	25%
Kynetec (2014-2018)	CALIFORNIA	10,000	3,000	0%
Kynetec (2014-2018)	OREGON	20,000	< 500	0%
Kynetec (2014-2018)	GEORGIA	100,000	50,000	15%
Kynetec (2014-2018)	TEXAS	200,000	50,000	20%
Kynetec (2014-2018)	LOUISIANA	3,000	4,000	0%
Kynetec (2014-2018)	NEW MEXICO	40,000	7,000	0%
Kynetec (2014-2018)	OKLAHOMA	100,000	3,000	5%
Kynetec (2014-2018)	AL, AZ	10,000	NR*	NR*
CADPR (2011-2015)	CALIFORNIA (94%)	20,000	1,000	<2.5%
CADPR (2011-2015)	CALIFORNIA (94%)	60,000	1,000	<1%
Kynetec (2014-2018)	CALIFORNIA	400,000	300,000	15%
**	**	**	**	**
+	+			
CADPR (2011-2015)	CALIFORNIA (83%)	900,000	70,000	15%
		900,000	40,000	<2.5%
CADPR (2011-2015)	CALIFORNIA (83%) CALIFORNIA (83%) OREGON	900,000 800	40,000 <500	<2.5% 0%
CADPR (2011-2015) CADPR (2011-2015) Kynetec (2014-2018) Kynetec (2014-2018)	CALIFORNIA (83%) CALIFORNIA (83%) OREGON NEW YORK	900,000 800 <500	40,000 <500 <500	<2.5% 0% 0%
CADPR (2011-2015) CADPR (2011-2015) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018)	CALIFORNIA (83%) CALIFORNIA (83%) OREGON NEW YORK MICHIGAN	900,000 800 <500 <500	40,000 <500 <500 <500	<2.5% 0% 0% 0% 0%
CADPR (2011-2015) CADPR (2011-2015) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018)	CALIFORNIA (83%) CALIFORNIA (83%) OREGON NEW YORK MICHIGAN PENNSYLVANIA	900,000 800 <500 <500 <500	40,000 <500 <500 <500 <500	<2.5% 0% 0% 0% 0% 0% 0%
CADPR (2011-2015) CADPR (2011-2015) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018)	CALIFORNIA (83%) CALIFORNIA (83%) OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA	900,000 800 <500 <500 <500 40,000	40,000 <500 <500 <500 <500 <500	<2.5% 0% 0% 0% 0% 0% 0% 0% 0%
CADPR (2011-2015) CADPR (2011-2015) Kynetec (2014-2018)	CALIFORNIA (83%) CALIFORNIA (83%) OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA FL, WA	900,000 800 <500 <500 <500 40,000 10,000	40,000 <500 <500 <500 <500 <500 NR*	<2.5% 0% 0% 0% 0% 0% 0% NR*
CADPR (2011-2015) CADPR (2011-2015) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018)	CALIFORNIA (83%) CALIFORNIA (83%) OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA	900,000 800 <500 <500 <500 40,000	40,000 <500 <500 <500 <500 <500	<2.5% 0% 0% 0% 0% 0% 0% 0% 0%
CADPR (2011-2015) CADPR (2011-2015) Kynetec (2014-2018)	CALIFORNIA (83%) CALIFORNIA (83%) OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA FL, WA	900,000 800 <500 <500 <500 40,000 10,000	40,000 <500 <500 <500 <500 <500 NR*	<2.5% 0% 0% 0% 0% 0% 0% NR*
CADPR (2011-2015) CADPR (2011-2015) Kynetec (2014-2018)	CALIFORNIA (83%) CALIFORNIA (83%) OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA FL, WA	900,000 800 <500 <500 <500 40,000 10,000	40,000 <500 <500 <500 <500 <500 NR*	<2.5% 0% 0% 0% 0% 0% 0% NR*
CADPR (2011-2015) CADPR (2011-2015) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018)  Kynetec (2014-2018)	CALIFORNIA (83%) CALIFORNIA (83%) OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA FL, WA **	900,000 800 <500 <500 <500 40,000 10,000 ***	40,000 <500 <500 <500 <500 <500 NR*	<2.5%  0%  0%  0%  0%  0%  0%  NR*  **  +  0%
CADPR (2011-2015) CADPR (2011-2015) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018)  ***  +	CALIFORNIA (83%) CALIFORNIA (83%) OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA FL, WA ***	900,000 800 <500 <500 <500 40,000 10,000 ***	40,000 <500 <500 <500 <500 <500 NR* **	<2.5%  0%  0%  0%  0%  0%  0%  NR*  **  +  0%  <2.5%
CADPR (2011-2015) CADPR (2011-2015) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018)  **  H  Kynetec (2014-2018)	CALIFORNIA (83%) CALIFORNIA (83%) OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA FL, WA **  + GEORGIA	900,000 800 <500 <500 <500 40,000 10,000 *** + 400,000	40,000 <500 <500 <500 <500 <500 NR* **	<2.5%  0%  0%  0%  0%  0%  0%  NR*  **  +  0%  <2.5%  0%
CADPR (2011-2015) CADPR (2011-2015) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018)  **  +  Kynetec (2014-2018)  Kynetec (2014-2018)  Kynetec (2014-2018)	CALIFORNIA (83%)  CALIFORNIA (83%)  OREGON  NEW YORK  MICHIGAN  PENNSYLVANIA  CALIFORNIA  FL, WA  **  GEORGIA  KANSAS	900,000 800 <500 <500 40,000 10,000 ***  400,000 4,700,000 300,000 1,300,000	40,000 <500 <500 <500 <500 <500 NR* ** + 10,000 100,000 2,000 20,000	<2.5%  0%  0%  0%  0%  0%  0%  NR*  **  +  0%  <2.5%  0%  0%  0%  0%
CADPR (2011-2015) CADPR (2011-2015) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018)  **  H  Kynetec (2014-2018)  Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018)	CALIFORNIA (83%) CALIFORNIA (83%) OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA FL, WA **  GEORGIA KANSAS OKLAHOMA COLORADO PENNSYLVANIA	900,000 800 800 <500 <500 40,000 10,000 ***  + 400,000 4,700,000 300,000 1,300,000 1,400,000	40,000 <500 <500 <500 <500 <500 NR* **  + 10,000 100,000 2,000 20,000 30,000	<2.5%  0%  0%  0%  0%  0%  NR*  **  +  0%  <2.5%  0%  0%  <21%
CADPR (2011-2015) CADPR (2011-2015) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018)  ***  H  Kynetec (2014-2018)	CALIFORNIA (83%) CALIFORNIA (83%) OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA FL, WA ***  GEORGIA KANSAS OKLAHOMA COLORADO PENNSYLVANIA MARYLAND	900,000 800 <500 <500 <500 40,000 10,000  ***  + 400,000 4,700,000 300,000 1,300,000 1,400,000 500,000	40,000 <500 <500 <500 <500 <500 <500 NR*  **  +  10,000 100,000 2,000 20,000 30,000 3,000	<2.5%  0%  0%  0%  0%  0%  0%  NR*  **  +  0%  <2.5%  0%  0%  <1%  0%  0%
CADPR (2011-2015) CADPR (2011-2015) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018)  **  H  Kynetec (2014-2018)	CALIFORNIA (83%) CALIFORNIA (83%) OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA FL, WA ***  GEORGIA KANSAS OKLAHOMA COLORADO PENNSYLVANIA MARYLAND VIRGINIA	900,000  800  <500  <500  40,000  10,000  ***   400,000  4,700,000  300,000  1,300,000  1,400,000  500,000  500,000	40,000 <500 <500 <500 <500 <500 NR* **  + 10,000 100,000 2,000 20,000 30,000 3,000 5,000	<2.5%  0%  0%  0%  0%  0%  0%  NR*  **  +  0%  <2.5%  0%  0%  <1%  0%  0%  0%  0%  0%  0%
CADPR (2011-2015) CADPR (2011-2015) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018)  **  H  Kynetec (2014-2018)	CALIFORNIA (83%) CALIFORNIA (83%) OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA FL, WA ***  + GEORGIA KANSAS OKLAHOMA COLORADO PENNSYLVANIA MARYLAND VIRGINIA OHIO	900,000  800  <500  <500  <500  40,000  10,000  **   400,000  4,700,000  300,000  1,300,000  1,400,000  500,000  3,600,000	40,000 <500 <500 <500 <500 <500 <500 NR* **  10,000 100,000 2,000 20,000 30,000 3,000 5,000 50,000	<2.5%  0%  0%  0%  0%  0%  0%  NR*  **  +  0%  <2.5%  0%  0%  <1%  0%  <1%  0%  <1%
CADPR (2011-2015) CADPR (2011-2015) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018)  ***  H Kynetec (2014-2018)	CALIFORNIA (83%) CALIFORNIA (83%) OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA FL, WA ***  + GEORGIA KANSAS OKLAHOMA COLORADO PENNSYLVANIA MARYLAND VIRGINIA OHIO INDIANA	900,000  800  <500  <500  <500  40,000  10,000  **  400,000  4,700,000  300,000  1,300,000  1,400,000  500,000  3,600,000  5,600,000  5,600,000	40,000 <500 <500 <500 <500 <500 <500 NR* **  10,000 100,000 20,000 20,000 30,000 3,000 50,000 50,000	<2.5%  0%  0%  0%  0%  0%  NR*  **  +  0%  <2.5%  0%  0%  <1%  0%  <1%  0%  <1%  0%  0%  <1%  0%  0%
CADPR (2011-2015) CADPR (2011-2015) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018)  ***  H  Kynetec (2014-2018)	CALIFORNIA (83%) CALIFORNIA (83%) OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA FL, WA **  GEORGIA KANSAS OKLAHOMA COLORADO PENNSYLVANIA MARYLAND VIRGINIA OHIO INDIANA MISSISSIPPI	900,000 800 <500 <500 <500 40,000 10,000  ***  + 400,000 4,700,000 300,000 1,300,000 1,400,000 500,000 500,000 5,600,000 600,000	40,000 <500 <500 <500 <500 <500 NR* **  10,000 100,000 2,000 20,000 30,000 3,000 50,000 50,000 5,000	<2.5%  0%  0%  0%  0%  0%  0%  NR*  **  +  0%  <2.5%  0%  0%  <1%  0%  <1%  0%  0%  0%  0%  0%  0%  0%  0%  0%
CADPR (2011-2015) CADPR (2011-2015) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018)  ***  **  Kynetec (2014-2018)	CALIFORNIA (83%)  CALIFORNIA (83%)  OREGON  NEW YORK  MICHIGAN  PENNSYLVANIA  CALIFORNIA  FL, WA  ***  GEORGIA  KANSAS  OKLAHOMA  COLORADO  PENNSYLVANIA  MARYLAND  VIRGINIA  OHIO  INDIANA  MISSISSIPPI  NEBRASKA	900,000  800  <500  <500  <500  40,000  10,000  ***  +  400,000  4,700,000  300,000  1,300,000  1,400,000  500,000  500,000  3,600,000  5,600,000  600,000  9,600,000	40,000 <500 <500 <500 <500 <500  NR*  **  10,000 100,000 2,000 20,000 30,000 3,000 5,000 50,000 50,000 50,000	<2.5%  0%  0%  0%  0%  0%  0%  NR*  **  +  0%  <2.5%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  0%  <1%  0%  0%  <1%  0%  0%  <1%  0%  0%  0%  <1%  0%  0%  <1%  0%  0%  0%  <1%  0%  0%  0%  <1%  0%  0%  0%  0%  0%  0%  0%  0%  0%
CADPR (2011-2015) CADPR (2011-2015) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018)  ***  H  Kynetec (2014-2018)	CALIFORNIA (83%)  CALIFORNIA (83%)  OREGON  NEW YORK  MICHIGAN  PENNSYLVANIA  CALIFORNIA  FL, WA  ***   GEORGIA  KANSAS  OKLAHOMA  COLORADO  PENNSYLVANIA  MARYLAND  VIRGINIA  OHIO  INDIANA  MISSISSIPPI  NEBRASKA  SOUTH CAROLINA	900,000  800  <500  <500  <500  40,000  10,000  ***  +  400,000  4,700,000  300,000  1,300,000  1,400,000  500,000  500,000  3,600,000  5,600,000  600,000  9,600,000  300,000  300,000	40,000 <500 <500 <500 <500 <500 <500 NR*  **  10,000 100,000 2,000 20,000 30,000 3,000 50,000 50,000 50,000 2,000 2,000 2,000	<2.5%  0%  0%  0%  0%  0%  0%  NR*  **  +  0%  <2.5%  0%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  0%  <1%  0%  0%  0%  0%  0%  0%  0%  0%  0%
CADPR (2011-2015) CADPR (2011-2015) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018)  ***  H  Kynetec (2014-2018)	CALIFORNIA (83%) CALIFORNIA (83%) OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA FL, WA ***  H GEORGIA KANSAS OKLAHOMA COLORADO PENNSYLVANIA MARYLAND VIRGINIA OHIO INDIANA MISSISSIPPI NEBRASKA SOUTH CAROLINA IOWA	900,000  800  <500  <500  <500  40,000  10,000  ***   +  400,000  4,700,000  300,000  1,300,000  1,400,000  500,000  500,000  5,600,000  5,600,000  9,600,000  300,000  13,600,000  13,600,000  13,600,000  13,600,000  13,600,000	40,000 <500 <500 <500 <500 <500 <500 NR*  **  10,000 100,000 2,000 20,000 30,000 3,000 50,000 50,000 50,000 50,000 50,000 70,000	<2.5%  0%  0%  0%  0%  0%  0%  NR*  **  +  0%  <2.5%  0%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  0%  <1%  0%  0%  <1%  0%  0%  <1%  0%  0%  <1%  0%  0%  <1%  0%  0%  <1%  0%  0%  <1%  0%  0%  <1%  0%  0%  <1%  0%  0%  <1%  0%  0%  <1%  0%  0%  <1%  0%  0%  <1%  0%  0%  0%  <1%  0%  0%  0%  <1%  0%  0%  0%  0%  0%  0%  0%  0%  0%
CADPR (2011-2015) CADPR (2011-2015) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018)  ***  H Kynetec (2014-2018)	CALIFORNIA (83%) CALIFORNIA (83%) OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA FL, WA ***  + GEORGIA KANSAS OKLAHOMA COLORADO PENNSYLVANIA MARYLAND VIRGINIA OHIO INDIANA MISSISSIPPI NEBRASKA SOUTH CAROLINA IOWA ALABAMA	900,000  800  <500  <500  <500  40,000  10,000  ***   +  400,000  4,700,000  300,000  1,300,000  1,400,000  500,000  500,000  5,600,000  5,600,000  9,600,000  300,000  13,600,000  300,000  300,000  300,000  300,000  300,000  300,000	40,000 <500 <500 <500 <500 <500 <500 NR* **  10,000 100,000 2,000 20,000 30,000 30,000 50,000 50,000 50,000 50,000 50,000 50,000 <5000 <5000 <5000 <5000 <5000 <5000 <5000 <5000 <5000 <5000 <5000 <5000 <5000 <5000	<2.5%  0%  0%  0%  0%  0%  0%  NR*  **  +  0%  <2.5%  0%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  0%  <1%  0%  0%  <1%  0%  0%  0%  <1%  0%  0%  0%  0%  0%  0%
CADPR (2011-2015) CADPR (2011-2015) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018)  ***  H Kynetec (2014-2018)	CALIFORNIA (83%) CALIFORNIA (83%) OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA FL, WA ***  GEORGIA KANSAS OKLAHOMA COLORADO PENNSYLVANIA MARYLAND VIRGINIA OHIO INDIANA MISSISSIPPI NEBRASKA SOUTH CAROLINA IOWA ALABAMA ILLINOIS	900,000  800  <500  <500  <500  40,000  10,000  ***  +  400,000  4,700,000  300,000  1,300,000  1,400,000  500,000  500,000  5,600,000  600,000  9,600,000  300,000  13,600,000  300,000  13,600,000  300,000  11,500,000  11,500,000	40,000 <500 <500 <500 <500 <500 <500 NR* **  10,000 100,000 20,000 20,000 30,000 30,000 50,000 50,000 50,000 50,000 50,000 70,000 <500 70,000	<2.5%  0%  0%  0%  0%  0%  0%  NR*  **  +  0%  <2.5%  0%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%
CADPR (2011-2015) CADPR (2011-2015) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018)  ***  H Kynetec (2014-2018)	CALIFORNIA (83%) CALIFORNIA (83%) OREGON NEW YORK MICHIGAN PENNSYLVANIA CALIFORNIA FL, WA ***  + GEORGIA KANSAS OKLAHOMA COLORADO PENNSYLVANIA MARYLAND VIRGINIA OHIO INDIANA MISSISSIPPI NEBRASKA SOUTH CAROLINA IOWA ALABAMA	900,000  800  <500  <500  <500  40,000  10,000  ***   +  400,000  4,700,000  300,000  1,300,000  1,400,000  500,000  500,000  5,600,000  5,600,000  9,600,000  300,000  13,600,000  300,000  300,000  300,000  300,000  300,000  300,000	40,000 <500 <500 <500 <500 <500 <500 NR* **  10,000 100,000 2,000 20,000 30,000 30,000 50,000 50,000 50,000 50,000 50,000 50,000 <5000 <5000 <5000 <5000 <5000 <5000 <5000 <5000 <5000 <5000 <5000 <5000 <5000 <5000	<2.5%  0%  0%  0%  0%  0%  0%  NR*  **  +  0%  <2.5%  0%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  <1%  0%  0%  <1%  0%  0%  <1%  0%  0%  0%  <1%  0%  0%  0%  0%  0%  0%

20%	15%
10%	10%
95%	65%
55%	40%
85%	30%
90%	30%
90%	20%
30%	10%
20%	10%
10%	<2.5%
5%	<2.5%
5%	<1%
NR*	NR*
40%	35%
20%	10%
5%	<2.5%
45%	30%
40%	30%
60%	15%
35%	10%
5%	5%
NR*	NR*
10%	5%
<2.5%	<1%
50%	35%
**	**
-	+
150/	
15%	15%
5%	5%
30%	10%
25%	5%
25%	5%
10%	<2.5%
<2.5%	<1%
NR*	NR*
**	**
+	
	1
	+
30%	15%
30% 10%	15% 5%
30% 10% 15%	15% 5% <2.5%
30% 10% 15% 5%	15% 5% <2.5% <2.5%
30% 10% 15%	15% 5% <2.5%
30% 10% 15% 5%	15% 5% <2.5% <2.5%
30% 10% 15% 5% 5% 10% 5%	15% 5% <2.5% <2.5% <2.5% <2.5%
30% 10% 15% 5% 5% 10% 5%	15% 5% <2.5% <2.5% <2.5% <2.5% <2.5%
30% 10% 15% 5% 5% 10% 5% <2.5%	15% 5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5%
30% 10% 15% 5% 5% 10% 5% <2.5%	15% 5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5%
30% 10% 15% 5% 5% 5% 10% 5% <2.5% <2.5% 5%	15% 5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5%
30% 10% 15% 5% 5% 10% 5% <2.5% <2.5% <2.5%	15% 5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5%
30% 10% 15% 5% 5% 5% 10% 5% <2.5% <2.5% <2.5% 5% 5%	15% 5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <1%
30% 10% 15% 5% 5% 5% 10% 5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5%	15% 5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5%
30% 10% 15% 5% 5% 5% 10% 5% <2.5% <2.5% 5% <2.5% 5% <2.5% 5% 5% 62.5% 5%	15% 5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <1.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5%
30% 10% 15% 5% 5% 5% 10% 5% <2.5% <2.5% 5% <2.5% 5% <2.5% 5% <2.5% 5% <2.5% 5% <2.5%	15% 5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <1.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5%
30% 10% 15% 5% 5% 5% 10% 5% <2.5% <2.5% 5% <2.5% 5% <2.5% 5% <2.5% 5% <2.5% 5% <2.5% 5% <2.5% 5% <2.5%	15% 5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <1% <1% <1% <1% <1% <1%
30% 10% 15% 5% 5% 5% 10% 5% <2.5% <2.5% 5% <2.5% 5% <2.5% 5% <2.5% 5% <2.5% 5% <2.5%	15% 5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <1.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <2.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5% <1.5%

Field Corn
Field Corn
Sweet Corn
Pop Corn
Sorghum (Milo)
Wheat
Wheat, Spring
Wheat, Spring Wheat, Spring
Wheat, Spring Wheat, Spring
Wheat, Spring Wheat, Spring
Wheat, Spring Wheat, Spring
Wheat, Spring Wheat, Spring
Wheat, Spring Wheat, Spring
Wheat, Winter  Wheat, Winter

Kynetec (2014-2018)	KENTUCKY	1,422,000	1,799
Kynetec (2014-2018)	MINNESOTA	8,200,000	18,747
Kynetec (2014-2018)	ARKANSAS	632,000	705
Kynetec (2014-2018)	MICHIGAN	2,470,000	8,036
Kynetec (2014-2018)	IDAHO	332,000	206
Kynetec (2014-2018)	NORTH DAKOTA	3,280,000	1,623
Kynetec (2014-2018)	NEW YORK	1,120,000	1,835
Kynetec (2014-2018)	NORTH CAROLINA	904,000	1,508
Kynetec (2014-2018)	CALIFORNIA	466,000	216
Kynetec (2014-2018)	SOUTH DAKOTA	5,440,000	1,504
Kynetec (2014-2018)	TEXAS	2,360,000	195
	DE, LA, NM, TN, WA,		
Kynetec (2014-2018)	WY	1,874,000	NR*
Kynetec (2014-2018)	OREGON	24,572	15,089
Kynetec (2014-2018)	FLORIDA	40,060	17,279
Kynetec (2014-2018)	OHIO	14,740	7,587
Kynetec (2014-2018)	NEW YORK	27,290	7,323
Kynetec (2014-2018)	WASHINGTON	91,240	15,891
Kynetec (2014-2018)	CALIFORNIA	34,120	6,537
Kynetec (2014-2018)	PENNSYLVANIA	4,672	600
Kynetec (2014-2018)	WISCONSIN	63,020	1,704
Kynetec (2014-2018)	ILLINOIS	15,719	340
Kynetec (2014-2018)	MINNESOTA	117,049	652
Kynetec (2014-2018)	MICHIGAN	3,840	42
Kynetec (2014-2018)	GA, NJ	23,176	NR*
**	**	**	**
Vymataa (2014-2019)	LOUIGIANIA	52,000	9,732
Kynetec (2014-2018)	LOUISIANA	52,000	
Kynetec (2014-2018)	GEORGIA	30,000	1,433
Kynetec (2014-2018)	MISSOURI	81,000	1,307
Kynetec (2014-2018)	ARKANSAS	150,800	3,365
Kynetec (2014-2018)	OKLAHOMA	377,999	5,219
Kynetec (2014-2018)	TEXAS	2,200,351	21,987
Kynetec (2014-2018)	KANSAS	2,954,686	15,772
Kynetec (2014-2018)	ILLINOIS	27,000	70
Kynetec (2014-2018)	COLORADO	393,000 200.000	229
Kynetec (2014-2018)	NEBRASKA NM SD		69 NR*
Kynetec (2014-2018)	NM, SD +	324,000	
+ Variation (2014-2019)	ļ	7 104 000	+
Kynetec (2014-2018)	NORTH DAKOTA	7,194,000	222,324
Kynetec (2014-2018)	MINNESOTA	1,420,000	13,169
Kynetec (2014-2018)	WASHINGTON	562,000 3.283.000	2,212
Kynetec (2014-2018)	MONTANA SOLITH DAKOTA	3,283,000	2,356 1,244
Kynetec (2014-2018)	SOUTH DAKOTA	1,194,800	1,244
Kynetec (2014-2018)	IDAHO	480,000	143 NR*
Kynetec (2014-2018)	AZ, CA, OR	232,000	
Kynetec (2014-2018)	NORTH DAKOTA	236,000	24,853
Kynetec (2014-2018)	NEW MEXICO	236,000	13,262
Kynetec (2014-2018)	TEXAS	5,220,000	85,343 34,567
Kynetec (2014-2018)	CALIFORNIA	2,450,000	34,567
Kynetec (2014-2018)	CALIFORNIA	426,000	4,833
Kynetec (2014-2018)	OKLAHOMA	4,920,000	44,687
Kynetec (2014-2018)	KANSAS	8,480,000	22,796
Kynetec (2014-2018)	OREGON	732,000	754
Kynetec (2014-2018)	SOUTH DAKOTA	1,136,000	976
Kynetec (2014-2018)	MISSOURI	760,000	890

0%	2%	0%	1.2
0%	1%	0%	2.4
0%	2%	0%	0.2
0%	1%	0%	2.2
0%	1%	0%	0.2
0%	1%	0%	0.2
0%	1%	0%	0.4
0%	1%	0%	0.4
0%	0%	0%	0.2
0%	0%	0%	0.4
0%	0%	0%	0.2
NR*	NR*	NR*	
44%	82%	62%	28.2
2%	82%	44%	2.8
22%	69%	40%	12
0%	65%	25%	7.8
0%	34%	17%	5.6
1%	34%	14%	1.8
0%	22%	9%	1.2
1%	11%	5%	8.8
0%	8%	3%	4.4
0%	1%	1%	13
0%	2%	1%	0.4
NR*	NR*	NR*	
**	**	**	
0%	53%	25%	1.4
0%	21%	6%	0.8
0%	15%	3%	0.8
0%	7%	3%	0.4
0%	6%	2%	1.4
1%	5%	2%	6
0%	3%	1%	6.2
0%	4%	1%	0.4
0%	1%	0%	0.2
0%	0%	0%	0.4
NR*	NR*	NR*	800000000000000000000000000000000000000
+	+		
4%	14%	9%	37
1%	5%	3%	3.2
0%	6%	1%	0.6
0%	1%	0%	0.8
0%	1%	0%	0.6
0%	1%	0%	0.2
NR*	NR*	NR*	
0%	40%	13%	5
0%	35%	7%	0.4
0%	10%	6%	8.4
1%	9%	4%	3.4
0%	8%	3%	1.2
1%	7%	3%	8.2
0%	2%	1%	4.6
0%	2%	0%	0.4
0%	1%	0%	0.6
0%	1%	0%	0.6

Field Corn
Field Corn
Sweet Corn
Pop Corn
Sorghum (Milo)
Wheat
Wheat, Spring
Wheat, Winter

V	RENTHOUX	1 400 000	2,000	0%
Kynetec (2014-2018)	KENTUCKY	1,400,000 8,200,000	2,000 20,000	
Kynetec (2014-2018)	MINNESOTA	600,000	700	0%
Kynetec (2014-2018)	ARKANSAS MICHIGAN	2,500,000	8,000	0%
Kynetec (2014-2018)		300,000	<500	0%
Kynetec (2014-2018)	IDAHO NORTH DAKOTA	3,300,000		0%
Kynetec (2014-2018)	NORTH DAKOTA		2,000	0%
Kynetec (2014-2018)	NEW YORK	1,100,000	2,000	0%
Kynetec (2014-2018)	NORTH CAROLINA	900,000 500,000	2,000 <500	0%
Kynetec (2014-2018) Kynetec (2014-2018)	CALIFORNIA SOUTH DAKOTA	5,400,000	2,000	0%
		2,400,000	<500	0%
Kynetec (2014-2018)	TEXAS	2,400,000	<300	U%o
Kynetec (2014-2018)	DE, LA, NM, TN, WA, WY	1,900,000	NR*	NR*
Kynetec (2014-2018)	OREGON	20,000	20,000	45%
Kynetec (2014-2018)	FLORIDA	40,000	20,000	<2.5%
Kynetec (2014-2018)	OHIO	10,000	8,000	25%
Kynetec (2014-2018)	NEW YORK	30,000	7,000	0%
Kynetec (2014-2018)	WASHINGTON	90,000	20,000	0%
Kynetec (2014-2018)	CALIFORNIA	30,000	7,000	<2.5%
Kynetec (2014-2018)	PENNSYLVANIA	5,000	600	0%
Kynetec (2014-2018)	WISCONSIN	60,000	2,000	<2.5%
Kynetec (2014-2018)	ILLINOIS	20,000	<500	0%
Kynetec (2014-2018)	MINNESOTA	100,000	700	<1%
Kynetec (2014-2018)	MICHIGAN	4,000	<500	0%
Kynetec (2014-2018)	GA, NJ	20,000	NR*	NR*
**	**	**	**	**
Kynetec (2014-2018)	LOUISIANA	50,000	10,000	0%
Kynetec (2014-2018)	GEORGIA	30,000	1,000	0%
Kynetec (2014-2018)	MISSOURI	80,000	1,000	0%
Kynetec (2014-2018)	ARKANSAS	200,000	3,000	0%
Kynetec (2014-2018)	OKLAHOMA	400,000	5,000	0%
Kynetec (2014-2018)	TEXAS	2,200,000	20,000	<1%
Kynetec (2014-2018)	KANSAS	3,000,000	20,000	<1%
Kynetec (2014-2018)	ILLINOIS	30,000	<500	0%
Kynetec (2014-2018)	COLORADO	400,000	<500	0%
Kynetec (2014-2018)		200,000	<500	0%
Kynetec (2014-2018)	NM, SD	300,000	NR*	NR*
+	+	+	+	+
Kynetec (2014-2018)	NORTH DAKOTA	7,200,000	200,000	5%
Kynetec (2014-2018)	MINNESOTA	1,400,000	10,000	<1%
Kynetec (2014-2018)	WASHINGTON	600,000	2,000	0%
Kynetec (2014-2018)	MONTANA	3,300,000	2,000	0%
Kynetec (2014-2018)	SOUTH DAKOTA	1,200,000	1,000	0%
Kynetec (2014-2018)	IDAHO	500,000	<500	0%
Kynetec (2014-2018)	AZ, CA, OR	200,000	NR*	NR*
Kynetec (2014-2018)	NORTH DAKOTA	200,000	20,000	0%
Kynetec (2014-2018)	NEW MEXICO	200,000	10,000	0%
Kynetec (2014-2018)	TEXAS	5,200,000	90,000	<1%
Kynetec (2014-2018)	COLORADO	2,400,000	30,000	<1%
Kynetec (2014-2018)	CALIFORNIA	400,000	5,000	0%
Kynetec (2014-2018)	OKLAHOMA	4,900,000	40,000	<1%
	OKLAHOMA KANSAS	4,900,000 8,500,000	40,000 20,000	
Kynetec (2014-2018) Kynetec (2014-2018) Kynetec (2014-2018)				
Kynetec (2014-2018)	KANSAS	8,500,000	20,000	0%

<2.5%	<1%
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NR*	NR*
85%	65%
85%	45%
70%	45%
65%	25%
35%	20%
35%	15%
25%	10%
15%	5%
10%	5%
<2.5%	<1%
<2.5%	<1%
NR*	NR*
**	**
55%	30%
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25%	10%
25% 15%	5%
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15% 10% 10% 10% 5% 5% 5% <2.5% <2.5% NR* + 15% 10% <2.5% <2.5% <2.5% <1.5% <1.5% 10% 10% 35% 15% 10% 10% <1.5% 10% 10% <2.5%	5% 5% 5% <2.5% <1% <1% <1% <1% NR* + 10% 5% <2.5% <1% <1%  10% 5% <5.5%  10% 10% 5% 5% 5% <5% <1%
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15% 10% 10% 10% 5% 5% 5% <2.5% <2.5% NR* + 15% 10% <2.5% <2.5% <2.5% <1.5% <1.5% 10% 10% 35% 15% 10% 10% <1.5% 10% 10% <2.5%	5% 5% 5% <2.5% <1% <1% <1% <1% NR* + 10% 5% <2.5% <1% <1%  10% 5% <5.5%  10% 10% 5% 5% 5% <5% <1%

2/1

Wheat, Winter
Wheat, Winter
Triticale
Grass Forage/Fodder/Hay
Non-Grass Animal Feeds
Alfalfa
Clover (Grown for Seed)
Oil Seed Group
Cotton
Sunflowers

Kynetec (2014-2018)	IDAHO	748,000	61
Kynetec (2014-2018)	MICHIGAN	542,000	90
Kynetec (2014-2018)	WASHINGTON	1,702,000	338
Kynetec (2014-2018)	NEBRASKA	1,316,000	33
Kynetec (2014-2018)	NORTH CAROLINA	580,000	52
	AR, GA, IL, IN, KY, MT,		
Kynetec (2014-2018)	OH, TN, VA, WI	5,559,000	NR*
**	**	**	**
**	**	**	**
+	+	+	+
Kynetec (2014-2018)	OKLAHOMA	255,998	105,073
Kynetec (2014-2018)	KANSAS	588,000	101,316
Kynetec (2014-2018)	CALIFORNIA	804,000	108,745
Kynetec (2014-2018)	ARIZONA	271,000	14,183
Kynetec (2014-2018)	UTAH	536,000	43,102
Kynetec (2014-2018)	TEXAS	138,002	9,489
Kynetec (2014-2018)	MISSOURI	270,000	13,921
Kynetec (2014-2018)	IDAHO	1,074,001	56,904
Kynetec (2014-2018)	NEW MEXICO	126,000	10,462
Kynetec (2014-2018)	WYOMING	539,999	29,958
Kynetec (2014-2018)	NY	348,000	NR*
Kynetec (2014-2018)	OREGON	396,000	13,236
Kynetec (2014-2018)	COLORADO	726,000	25,379
Kynetec (2014-2018)	NEVADA	142,000	5,905
Kynetec (2014-2018)	NORTH DAKOTA	1,498,000	34,070
Kynetec (2014-2018)	MINNESOTA	988,000	16,782
Kynetec (2014-2018)	KENTUCKY	161,000	3,656
Kynetec (2014-2018)	VIRGINIA	66,000	545
Kynetec (2014-2018)	WASHINGTON	408,000	4,524
Kynetec (2014-2018)	NEBRASKA	794,000	8,676
Kynetec (2014-2018)	OHIO	338,000	2,219
Kynetec (2014-2018)	ILLINOIS	266,000	2,623
Kynetec (2014-2018)	SOUTH DAKOTA	1,794,000	10,681
Kynetec (2014-2018)	IOWA	774,000	6,162
Kynetec (2014-2018)	MONTANA	1,800,000	5,601
Kynetec (2014-2018)	PENNSYLVANIA	370,000	1,157
Kynetec (2014-2018)	WISCONSIN	1,132,000	3,194
Kynetec (2014-2018)	MICHIGAN	642,000	2,154
Kynetec (2014-2018)	INDIANA	244,000	214
**	**	**	**
+	+	+	+
Kynetec (2014-2018)	CALIFORNIA	229,000	26,224
Kynetec (2014-2018)	GEORGIA	1,322,000	26,607
Kynetec (2014-2018)	ALABAMA	386,000	2,915
Kynetec (2014-2018)	SOUTH CAROLINA	239,000	1,349
Kynetec (2014-2018)	MISSISSIPPI	461,000	3,508
Kynetec (2014-2018)	KANSAS	15,000	421
Kynetec (2014-2018)	MISSOURI	276,000	365
Kynetec (2014-2018)	OKLAHOMA	387,000	1,174
Kynetec (2014-2018)	NORTH CAROLINA	388,000	504
Kynetec (2014-2018)	ARIZONA	147,100	556
Kynetec (2014-2018)	TEXAS	6,117,000	3,458
Kynetec (2014-2018)	LOUISIANA	164,000	110
Kynetec (2014-2018)	AR, FL, TN	733,000	NR*
Kynetec (2014-2018)	KANSAS	64,800	14,873
Kynetec (2014-2018)	KANSAS	64,800	14,873

0%         0%         0%           0%         0%         0%           0%         0%         0%           0%         0%         0%	0.4
0% 0% 0%	0.2
	0.2
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0% 0% 0%	0.2
NR* NR* NR*	
** ** **	
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34% 67% 52%	13.2
13% 40% 31%	34.4
9% 50% 26%	17.6
0% 62% 17%	2.2
12% 27% 16%	12.2
0% 35% 12%	1.8
1% 21% 10%	4.6
5% 11% 10%	11.8
0% 28% 9%	1.6
3% 15% 8%	4.4
NR* NR* NR*	
0% 16% 7%	3
4% 8% 6%	5.8
0% 17% 5%	1.4
0% 8% 4%	6.6
1% 8% 3%	5
1% 6% 3%	1.4
0% 5% 2%	0.8
0% 8% 2%	0.6
0% 3% 2%	2.8
0% 7% 2%	0.6
0%     5%     1%       0%     2%     1%	1
0% 2% 1%	3.4 1.8
0% 2% 1%	1.6
0% 1% 1%	0.8
0% 1% 0%	1.6
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0% 0% 0%	0.2
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0% 16% 5%	7.6
0% 8% 2%	0.8
0% 7% 1%	0.4
0% 4% 1%	1
0% 4% 1%	0.2
0% 2% 1%	0.4
0% 1% 0%	0.6
0% 2% 0%	0.6
0% 2% 0%	0.2
0% 1% 0%	1.4
0% 0% 0%	0.2
NR* NR* NR*	
17% 54% 30%	12

Wheat, Winter
Wheat, Winter
Wheat, Winter
Wheat, Winter
Wheat, Winter
Wheat, Winter
Triticale
Grass Forage/Fodder/Hay
Non-Grass Animal Feeds
Alfalfa
Alfalfa
Alfalfa Alfalfa
Alfalfa
Alfalfa
Alfalfa
Clover (Grown for Seed)
Oil Seed Group
Cotton
Cotton Cotton
Cotton
Cotton
Cotton
Cotton
Sunflowers

Vimetoe (2014-2019)	IDATIO	700,000	<500	0%
Kynetec (2014-2018) Kynetec (2014-2018)	IDAHO MICHIGAN	500,000	<500	0%
Kynetec (2014-2018)	WASHINGTON	1,700,000	<500	0%
Kynetec (2014-2018)	NEBRASKA	1,300,000	<500	0%
Kynetec (2014-2018)  Kynetec (2014-2018)	NORTH CAROLINA	600,000	<500	0%
Kylietec (2014-2018)	AR, GA, IL, IN, KY, MT,	000,000	<300	078
Kynetec (2014-2018)	OH, TN, VA, WI	5,600,000	NR*	NR*
**	**	**	**	**
**	**	**	**	**
+	+	+	-	+
Kynetec (2014-2018)	OKLAHOMA	300,000	100,000	35%
Kynetec (2014-2018)	KANSAS	600,000	100,000	15%
Kynetec (2014-2018)	CALIFORNIA	800,000	100,000	10%
Kynetec (2014-2018)	ARIZONA	300,000	10,000	0%
Kynetec (2014-2018)	UTAH	500,000	40,000	15%
Kynetec (2014-2018)	TEXAS	100,000	9,000	0%
Kynetec (2014-2018)	MISSOURI	300,000	10,000	<2.5%
Kynetec (2014-2018)	IDAHO	1,100,000	60,000	10%
Kynetec (2014-2018)	NEW MEXICO	100,000	10,000	0%
Kynetec (2014-2018)	WYOMING	500,000	30,000	5%
Kynetec (2014-2018)	NY	300,000	NR*	NR*
Kynetec (2014-2018)	OREGON	400,000	10,000	0%
Kynetec (2014-2018)	COLORADO	700,000	30,000	5%
Kynetec (2014-2018)	NEVADA	100,000	6,000	0%
Kynetec (2014-2018)	NORTH DAKOTA	1,500,000	30,000	0%
Kynetec (2014-2018)	MINNESOTA	1,000,000	20,000	<1%
Kynetec (2014-2018)	KENTUCKY	200,000	4,000	<1%
Kynetec (2014-2018)	VIRGINIA	70,000	500	0%
Kynetec (2014-2018)	WASHINGTON	400,000	5,000	0%
Kynetec (2014-2018)	NEBRASKA	800,000	9,000	0%
Kynetec (2014-2018)	OHIO	300,000	2,000	0%
Kynetec (2014-2018)	ILLINOIS	300,000	3,000	0%
Kynetec (2014-2018)	SOUTH DAKOTA	1,800,000	10,000	<1%
Kynetec (2014-2018)	IOWA	800,000	6,000	0%
Kynetec (2014-2018)	MONTANA	1,800,000	6,000	0%
Kynetec (2014-2018)	PENNSYLVANIA	400,000	1,000	0%
Kynetec (2014-2018)	WISCONSIN	1,100,000	3,000	<1%
Kynetec (2014-2018)	MICHIGAN	600,000	2,000	0%
Kynetec (2014-2018)	INDIANA	200,000	<500	0%
**	**	**	**	**
-	+	+	-	+
Kynetec (2014-2018)	CALIFORNIA	200,000	30,000	10%
Kynetec (2014-2018)	GEORGIA	1,300,000	30,000	<1%
Kynetec (2014-2018)	ALABAMA	400,000	3,000	0%
Kynetec (2014-2018)	SOUTH CAROLINA	200,000	1,000	0%
Kynetec (2014-2018)	MISSISSIPPI	500,000	4,000	0%
Kynetec (2014-2018)	KANSAS	10,000	<500	0%
Kynetec (2014-2018)	MISSOURI	300,000	<500	0%
Kynetec (2014-2018)	OKLAHOMA	400,000	1,000	0%
Kynetec (2014-2018)	NORTH CAROLINA	400,000	500	0%
Kynetec (2014-2018)	ARIZONA	100,000	600	0%
Kynetec (2014-2018)	TEXAS	6,100,000	3,000	0%
Kynetec (2014-2018)	LOUISIANA	200,000	<500	0%
Kynetec (2014-2018)	AR, FL, TN	700,000	NR*	NR*
Kynetec (2014-2018)	KANSAS	60,000	10,000	20%

<2.5%	<1%
<2.5%	<1%
<2.5%	<1%
<2.5%	<1%
<2.5%	<1%
~2.370	~170
NR*	NR*
**	**
**	**
-	-
700/	550/
70%	55%
45%	35%
55%	30%
65%	20%
30%	20%
35%	15%
25%	10%
15%	10%
30%	10%
15%	10%
NR*	NR*
20%	10%
10%	10%
20%	10%
10%	5%
10%	5%
10%	5%
10%	<2.5%
10%	<2.5%
5%	<2.5%
10%	<2.5%
10%	<2.5%
<2.5%	<1%
<2.5%	<1%
<2.5%	<1%
<2.5%	<1%
<2.5%	<1%
<2.5%	<1%
<2.5%	<1%
~2.370 **	**
	4-
25%	15%
20%	10%
10%	<2.5%
10%	<2.5%
5%	<1%
5%	<1%
<2.5%	<1%
<2.5%	<1%
<2.5%	<1%
<2.5%	<1%
<2.5%	<1%
<2.5%	<1%
NR*	NR*
55%	35%

Sunflowers
Sunflowers
Stalk, Stem, and Leaf Petiole Vegetable Group
Asparagus
Asparagus
Asparagus
Misc Crops
Peanuts
Tobacco
Mint (Peppermint and Spearmint)
Mint (Peppermint and Spearmint)

,			
Kynetec (2014-2018)	COLORADO	74,500	6,611
Kynetec (2014-2018)	SOUTH DAKOTA	611,200	40,561
Kynetec (2014-2018)	NORTH DAKOTA	NORTH DAKOTA 593,600 18,80	
Kynetec (2014-2018)	MINNESOTA	65,100	2,823
Kynetec (2014-2018)	NEBRASKA	41,800	958
Kynetec (2014-2018)	TEXAS	70,300	3,412
+	+	+	+
Kynetec (2014-2018)	MICHIGAN	9,760	7,981
Kynetec (2014-2018)	CALIFORNIA	9,120	5,304
Kynetec (2014-2018)	WA	3,320	NR*
+	+	+	+
Kynetec (2014-2018)	VIRGINIA	22,000	4,747
Kynetec (2014-2018)	GEORGIA	722,000	125,341
Kynetec (2014-2018)	NORTH CAROLINA	101,599	12,099
Kynetec (2014-2018)	FLORIDA	172,000	8,029
Kynetec (2014-2018)	ALABAMA	182,000	5,803
Kynetec (2014-2018)	TEXAS	205,000	8,736
Kynetec (2014-2018)	OK, SC	124,601	NR*
Kynetec (2014-2018)	GEORGIA	13,268	3,011
Kynetec (2014-2018)	NORTH CAROLINA	170,390	42,759
Kynetec (2014-2018)	SOUTH CAROLINA	12,866	2,424
Kynetec (2014-2018)	PENNSYLVANIA	8,254	938
Kynetec (2014-2018)	VIRGINIA	25,115	1,153
Kynetec (2014-2018)	KENTUCKY	80,913	2,256
Kynetec (2014-2018)	TENNESSEE	21,179	130
Kynetec (2014-2018)	ОН	1,135	NR*
CADPR (2011-2015)	CALIFORNIA (D%)	(D)	NR*
**	Other States (%)		**

	Notes		
AMRD (YEAR-YEAR)	Agricultural usage surveyed by market research firm(s)		
NASS (YEAR)	Surveyed by United States Department of Agriculture National Agricultural Statistics Service		
Cal DPR (YEAR)	Surveyed by the California Department of Pesticide Regulation. Over than 80% of crop grown in Californ		
a	The pounds AI displayed in this document may differ from those displayed in the SLUA and other BEAD		
b	Total Acres Treated accounts for multiple applications to a single area. This may overestimate the number		
c	Max labeled rate from APPENDIX 1-3. CYP Master Use Table		
*	California crop. Over than 80% of crop grown in California		
+	See constituent crops below. (Note, full crop group may not be registered, see Table 1).		
NR*	Surveyed by the indicated source in the years listed, but no usage reported.		
**	Site not surveyed at national level		
(S)	nsufficient number of reports to establish an estimate. This indicates that the chemical is only periodicall		

4%	38%	17%	2.4
3%	26%	10%	3.8
2%	20%	8%	14
0%	26%	8%	1.4
0%	16%	6%	0.8
0%	25%	5%	1.2
+	+	÷	
53%	88%	73%	28.6
0%	74%	29%	5.6
NR*	NR*	NR*	
+	+	+	
0%	30%	12%	1.4
5%	16%	9%	11.6
5%	10%	6%	5.2
0%	11%	3%	1.4
0%	5%	2%	1
0%	4%	1%	0.6
NR*	NR*	NR*	
0%	77%	23%	2.2
14%	26%	21%	18.6
0%	58%	17%	1
0%	15%	8%	0.8
3%	7%	5%	1.2
0%	7%	3%	4.2
0%	2%	0%	0.2
NR*	NR*	NR*	
NR*	NR*	NR*	
**	**	**	
L Company	1		00000 <b>1</b>

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documents, because different calculation methods were used.
er of acres treated as some acres are treated more than once.
y used by a small number of users.

Sunflowers           Sunflowers           Sunflowers           Sunflowers           Sunflowers           Sunflowers           Sunflowers           Stalk. Stem, and Leaf Petiole Vegetable Group           Asparagus           Asparagus           Asparagus           Misc Crops           Peanuts           Peanute           Peanute </th <th></th>	
Sunflowers Sunflowers Sunflowers Sunflowers Stalk, Stem, and Leaf Petiole Vegetable Group Asparagus Asparagus Asparagus Asparagus Misc Crops Peanuts Peanuts Peanuts Peanuts Peanuts Peanuts Peanuts Peanuts Obacco Tobacco	Sunflowers
Sunflowers           Sunflowers           Stalk, Stem, and Leaf Petiale Vegetable Group           Asparagus           Asparagus           Asparagus           Misc Crops           Peanuts           Tobacco	Sunflowers
Sunflowers Stalk, Stem, and Leaf Petiole Vegetable Group Asparagus Asparagus Asparagus Asparagus Misc Crops Peanuts Peanuts Peanuts Peanuts Peanuts Peanuts Peanuts Peanuts One Componity Peanuts Pean	Sunflowers
Stalk, Stem, and Leaf Petiole Vegetable Group           Asparagus           Asparagus           Asparagus           Misc Crops           Peanuts           Peanuts           Peanuts           Peanuts           Peanuts           Peanuts           Peanuts           Peanuts           Peanuts           Tobacco           Mint (Peppermint and Spearmint)	Sunflowers
Stalk, Stem, and Leaf Petiole Vegetable Group  Asparagus Asparagus Asparagus  Misc Crops  Peanuts Peanuts Peanuts Peanuts Peanuts Peanuts Peanuts Peanuts Poanuts Poan	
Asparagus Asparagus Asparagus  Misc Crops Peanuts Peanuts Peanuts Peanuts Peanuts Peanuts Peanuts Peanuts Poanuts Poan	Sunflowers
Asparagus         Misc Crops         Peanuts         Peanuts         Peanuts         Peanuts         Peanuts         Peanuts         Peanuts         Peanuts         Peanuts         Tobacco	Stalk, Stem, and Leaf Petiole Vegetable Group
Asparagus         Misc Crops         Peanuts         Peanuts         Peanuts         Peanuts         Peanuts         Peanuts         Peanuts         Peanuts         Peanuts         Tobacco	Asparagus
Misc Crops Peanuts Poacco Tobacco	
Peanuts Poacco Tobacco	
Peanuts Peanuts Peanuts Peanuts Peanuts Peanuts Peanuts Peanuts Poacco Tobacco	Misc Crops
Peanuts Peanuts Peanuts Peanuts Peanuts Peanuts Tobacco	
Peanuts Peanuts Peanuts Peanuts Tobacco Tobacco Tobacco Tobacco Tobacco Tobacco Tobacco Mint (Peppermint and Spearmint)	
Peanuts Peanuts Tobacco Tobacco Tobacco Tobacco Tobacco Tobacco Tobacco Tobacco Mint (Peppermint and Spearmint)	
Peanuts Tobacco	
Peanuts Tobacco	
Tobacco Mint (Peppermint and Spearmint)	
Tobacco Tobacco Tobacco Tobacco Tobacco Tobacco Tobacco Tobacco Tobacco Mint (Peppermint and Spearmint)	
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Tobacco Tobacco Tobacco Tobacco Mint (Peppermint and Spearmint)	
Tobacco Tobacco Mint (Peppermint and Spearmint)	
Tobacco Mint (Peppermint and Spearmint)	
Mint (Peppermint and Spearmint)	
Mint (Peppermint and Spearmint)	Mint (Peppermint and Spearmint)
	Mint (Peppermint and Spearmint)

Vzmataa (2014-2019)	COLORADO	70,000	7,000	5%
Kynetec (2014-2018)	COLORADO		<u> </u>	
Kynetec (2014-2018)	SOUTH DAKOTA	600,000	40,000	5%
Kynetec (2014-2018)	NORTH DAKOTA	600,000	20,000	<2.5%
Kynetec (2014-2018)	MINNESOTA	70,000	3,000	0%
Kynetec (2014-2018)	NEBRASKA	40,000	1,000	0%
Kynetec (2014-2018)	TEXAS	70,000	3,000	0%
+	+	+	+	+
Kynetec (2014-2018)	MICHIGAN	10,000	8,000	55%
Kynetec (2014-2018)	CALIFORNIA	9,000	5,000	0%
Kynetec (2014-2018)	WA	3,000	NR*	NR*
+	+	+	+	+
Kynetec (2014-2018)	VIRGINIA	20,000	5,000	0%
Kynetec (2014-2018)	GEORGIA	700,000	100,000	10%
Kynetec (2014-2018)	NORTH CAROLINA	100,000	10,000	5%
Kynetec (2014-2018)	FLORIDA	200,000	8,000	0%
Kynetec (2014-2018)	ALABAMA	200,000	6,000	0%
Kynetec (2014-2018)	TEXAS	200,000	9,000	0%
Kynetec (2014-2018)	OK, SC	100,000	NR*	NR*
Kynetec (2014-2018)	GEORGIA	10,000	3,000	0%
Kynetec (2014-2018)	NORTH CAROLINA	200,000	40,000	15%
Kynetec (2014-2018)	SOUTH CAROLINA	10,000	2,000	0%
Kynetec (2014-2018)	PENNSYLVANIA	8,000	900	0%
Kynetec (2014-2018)	VIRGINIA	30,000	1,000	5%
Kynetec (2014-2018)	KENTUCKY	80,000	2,000	<1%
Kynetec (2014-2018)	TENNESSEE	20,000	< 500	0%
Kynetec (2014-2018)	ОН	1,000	NR*	NR*
CADPR (2011-2015)	CALIFORNIA (D%)	(D)	NR*	NR*
**	Other States (%)		**	**

40%	20%
30%	15%
20%	10%
30%	10%
20%	10%
25%	10%
4	+
90%	75%
75%	30%
NR*	NR*
+	+
30%	15%
20%	10%
10%	10%
15%	5%
10%	<2.5%
5%	<1%
NR*	NR*
80%	25%
30%	25%
60%	20%
20%	10%
10%	5%
10%	5%
<2.5%	<1%
NR*	NR*
NR*	NR*
**	**

## Raw

Table 3. National Chlorpyrifos Non-Crop Usage by Site. Data Averaged Over Reported Years.

Use Site	Data Source	Avg, Annual Pounds AI Applied ^a	% of market by weight
ALL Ornamental Lawns And Turf, Sod Farms (Turf)	Kline (2012)	142,000	6.5% (sixth highest)
Nursery/Greenhouse	Kline (2012)	47,318	8.3% (second highest)
Deep South	Kline (2012)	8,000	
North Central	Kline (2012)	13,000	
Northeast	Kline (2012)	9,000	
South	Kline (2012)	15,000	
West	Kline (2012)	2,000	
Turf Farms	Kline (2012)	70,144	58% (number 1)
Deep South	Kline (2012)	56,000	
South	Kline (2012)	11,000	
West	Kline (2012)	3,000	
Golf Course Turf	Kline (2012)	21,872	4.8% (fifth highest)
Deep South	Kline (2012)	6,000	
North Central	Kline (2012)	3,000	
Northeast	Kline (2012)	7,000	
South	Kline (2012)	4,000	
West	Kline (2012)	1,000	
In Institutional Turf Facilities	Kline (2012)	308	0.2%
West	Kline (2012)	308	
Applied to Turf by Landscape Contractors	Kline (2012)	39	0.05%
Northeast	Kline (2012)	39	
Applied to Turf by Lawn Care Operators	Kline (2012)	2,773	0.4%
South	Kline (2012)	400	
West	Kline (2012)	2,000	

Avg. Annual Total Acres Treated ^b	Max Single Labeled Rate ^c
	6.0 lb/a (woody shrubs/vines) 4.0 lb/a (nursery stock) 3.0 lb/a (herbaceous plants and ornamental trees) 0.007 lb/gal (non-flowering) 3.76 lb/a (turf) 0.01 lb/tree, 2.5 lb/a (seed orchard trees) 0.0066 lb/1,000 sq, 0.029 lb/a (greenhouse total release fogger)
66,860	6.0 lb/a (woody shrubs/vines) 4.0 lb/a (nursery stock) 3.0 lb/a (herbaceous plants and ornamental trees) 0.01 lb/tree, 2.5 lb/a (seed orchard trees) 0.0066 lb/1,000 sq, 0.029 lb/a (greenhouse total release fogger) 0.007 lb/gal (non-flowering)
13,150	(see above)
14,930	(see above)
24,700	(see above)
11,810	(see above)
2,260	(see above)
63,700	3.76 lb/a
50,430	3.76 lb/a
6,790	3.76 lb/a
6,480	3.76 lb/a
24,160	3.76 lb/a
3,800	3.76 lb/a
3,150	3.76 lb/a
8,250	3.76 lb/a
6,460	3.76 lb/a
2,490	3.76 lb/a
620	3.76 lb/a
620	3.76 lb/a
40	3.76 lb/a
40	3.76 lb/a
2,140	3.76 lb/a
260	3.76 lb/a
950	3.76 lb/a
+	+

# Rounded

Table 3. National Chlorpyrifos Non-Crop Usage by Site. Data Averaged Over Reported Years.

	Use Site	
ALL Ornamental Lawns And Turf, Sod	Farms (Turf)	
Nursery/Greenhouse		
Deep South		
North Central		
Northeast		
South	•••••	
West		
Turf Farms		
Deep South		
South		
West		
Golf Course Turf		
Deep South	<u> </u>	
North Central		
Northeast		
South		
West		
In Institutional Turf Facilities		
West		
Applied to Turf by Landscape Cont		
Northeast		
Applied to Turf by Lawn Care Oper	rators	
South		
West		
Vide Area Treatments		

Data Source	Avg. Annual Pounds AI Applied ^a	% of market by weight	Avg. Annual Total Acres Treated ^b
Kline (2012)	100,000	6.5% (sixth highest)	
Kline (2012)	50,000	8.3% (second highest)	66,860
Kline (2012)	8,000		13,150
Kline (2012)	10,000		14,930
Kline (2012)	9,000	~ ·-	24,700
Kline (2012)	20,000		11,810
Kline (2012)	2,000		2,260
Kline (2012)	70,000	58% (number 1)	63,700
Kline (2012)	60,000		50,430
Kline (2012)	10,000		6,790
Kline (2012)	3,000		6,480
Kline (2012)	20,000	4.8% (fifth highest)	24,160
Kline (2012)	6,000	700 900	3,800
Kline (2012)	3,000		3,150
Kline (2012)	7,000		8,250
Kline (2012)	4,000		6,460
Kline (2012)	1,000		2,490
Kline (2012)	<500	0.2%	620
Kline (2012)	<500		620
Kline (2012)	<500	0.05%	40
Kline (2012)	<500		40
Kline (2012)	3,000	0.4%	2,140
Kline (2012)	<500		260
Kline (2012)	2,000		950
+	+	+	+

Max Single Labeled Rate ^c
6.0 lb/a (woody shrubs/vines) 4.0 lb/a (nursery stock) 3.0 lb/a (herbaceous plants and ornamental trees) 0.007 lb/gal (non-flowering) 3.76 lb/a (turf) 0.01 lb/tree, 2.5 lb/a (seed orchard trees) 0.0066 lb/1,000 sq, 0.029 lb/a (greenhouse total release fogger)
6.0 lb/a (woody shrubs/vines) 4.0 lb/a (nursery stock) 3.0 lb/a (herbaceous plants and ornamental trees) 0.01 lb/tree, 2.5 lb/a (seed orchard trees) 0.0066 lb/1,000 sq, 0.029 lb/a (greenhouse total release fogger) 0.007 lb/gal (non-flowering)
(see above)
3.76 lb/a
+

Mosquito Control; Household/			
Domestic Dwellings Outdoor Premises;	Kline (2015)	10,944	0.50%
Recreational Areas			
North Central	Kline (2015)	532	
South	Kline (2015)	9,339	
West	Kline (2015)	1,073	
Wide Area/ General Outdoor Treatment (for ants	Kline (2016)	NR*	NR*
and other misc pests)	Kilile (2010)	1411	IVIX
Buildings/Premises	-#-	-	
Commercial/Institution-Al/ Industrial Premises/ Equip. (Indoor)	Kline (2016)	NR*	NR*
Commercial/Institutional /Industrial Premises/Equip. (Outdoor)	Kline (2016)	NR*	NR*
Nonagricultural Outdoor Buildings/Structures (non-residential)	Kline (2016)	NR*	NR*
Household/ Domestic Dwellings Indoor Premises	Kline (2016)	NR*	NR*
Wood Protection Treatment To Buildings/ Products Outdoor	Kline (2016)	NR*	NR*
Food Processing Plant Premises (Nonfood Contact)	Kline (2014)	NR*	NR*
Rights of Way/Utilities	+	-	+
Rights of Way, Road Medians	Kline (2016)	NR*	NR*
Utilities	Kline (2016)	NR*	NR*
Sewer Manhole Covers and Walls	Kline (2016)	NR*	NR*
Livestock Areas/Animais	+	-	-
Agricultural Farm Premises (livestock housing and holding areas)	**	**	**
Poultry Litter	**	**	**
Beef/Dairy Cattle	**	**	**
Trees	4	-	-
Christmas Tree Plantations	Kline (2016)	NR*	NR*
Hybrid Cottonwood/ Poplar Plantations	Kline (2016)	NR*	NR*
Forest Plantings (Reforestation Programs) (Tree Farms, Tree Plantations, etc)	Kline (2016)	NR*	NR*
Conifers And Deciduous Trees; Plantation, Nursery	Kline (2016)	NR*	NR*
Forest Trees (Softwoods, Conifers)	Kline (2016)	NR*	NR*

	Notes
Kline (YEAR)	Non-agricultural usage surveyed by market research firm(s)
a	The pounds AI displayed in this document may differ from those displayed in the SLUA and c
b	Total Acres Treated accounts for multiple applications to a single area. This may overestimat

0.01 lb/a
0.01 lb/a
0.01 lb/a
0.01 lb/a
0.5084 lb/100 gal
0.4373 lb/100 sq ft, 190.5 lb/a (fire ants);
0.0625 lb/1,000 sq ft, 2.7 lb/a (general)
0.1132 lb/1,000 sq ft, 4.9 lb/a
1.0 lb/a
0.0003 lb/bait station
16.65 lb/10,000 sq ft
0.0424 lb/gal
+
1.0 lb/a
0.44 lb/100 sq ft/ 1.0 lb/a
0.31 lb/ manhole +
0.075 lb/1,000 sq ft, 1.2 lb/a
0.07126 a.i./1000 sq ft, 3.1 lb/a
0.0066 lb/animal
2 F lb/c
2.5 lb/a 1.9 lb/a
1.0 lb/a
1.0 lb/a
[3.6 lb/a] 2.4 lb a.i./100 gal

documents, because different calculation methods were used.	_
 er of acres treated as some acres are treated more than once.	_

Mosquito Control; Household/ **Domestic Dwellings Outdoor Premises;** Recreational Areas North Central South West Wide Area/ General Outdoor Treatment (for ants and other misc pests) **Buildings Premises** Commercial/Institution-Al/ Industrial Premises/ Equip. (Indoor) Commercial/Institutional /Industrial Premises/Equip. (Outdoor) Nonagricultural Outdoor Buildings/Structures (non-residential) Household/ Domestic Dwellings Indoor Premises Wood Protection Treatment To Buildings/ Products Outdoor Food Processing Plant Premises (Nonfood Contact) Rights of Way/Utilities Rights of Way, Road Medians Utilities Sewer Manhole Covers and Walls Livestock Areas/Animals Agricultural Farm Premises (livestock housing and holding areas) Poultry Litter Beef/Dairy Cattle Trees Christmas Tree Plantations Hybrid Cottonwood/ Poplar Plantations Forest Plantings (Reforestation Programs) (Tree Farms, Tree Plantations, etc) Conifers And Deciduous Trees; Plantation, Nursery Forest Trees (Softwoods, Conifers)

Kline (YEAR)
a
b

Kline (2015)	10,000	0.50%	1,103,408
Kline (2015)	500	~~	88,306
Kline (2015)	9,000		895,102
Kline (2015)	1,000		120,000
Kline (2016)	NR*	NR*	NR*
+	+	+	+
Kline (2016)	NR*	NR*	NR*
Kline (2016)	NR*	NR*	NR*
Kline (2016)	NR*	NR*	NR*
Kline (2016)	NR*	NR*	NR*
Kline (2016)	NR*	NR*	NR*
Kline (2014)	NR*	NR*	NR*
+	+	+	+
Kline (2016)	NR*	NR*	NR*
Kline (2016)	NR*	NR*	NR*
Kline (2016)	NR*	NR*	NR*
<u>-</u>	+	+	+
**	**	**	**
**	**	**	**
**	**	**	**
-	+	+	+
Kline (2016)	NR*	NR*	NR*
Kline (2016)	NR*	NR*	NR*
Kline (2016)	NR*	NR*	NR*
Kline (2016)	NR*	NR*	NR*
Kline (2016)	NR*	NR*	NR*

### Notes

Non-agricultural usage surveyed by market research firm(s)

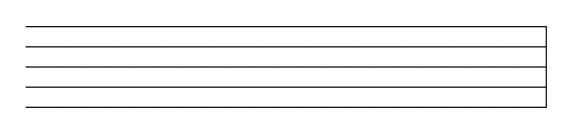
The pounds AI displayed in this document may differ from those displayed in the SLUA and other BEAD documents, beat Total Acres Treated accounts for multiple applications to a single area. This may overestimate the number of acres treated accounts for multiple applications to a single area.

0.01 lb/a
0.01 lb/a
0.01 lb/a
0.01 lb/a
0.5084 lb/100 gal
+
0.4373 lb/100 sq ft, 190.5 lb/a (fire ants);
0.0625 lb/1,000 sq ft, 2.7 lb/a (general)
0.1132 lb/1,000 sq ft, 4.9 lb/a
1.0 lb/a
0.0003 lb/bait station
16.65 lb/10,000 sq ft
0.0424 lb/gal
+
+ 1.0 lb/a
± 1.0 lb/a 0.44 lb/100 sq ft/ 1.0 lb/a
+ 1.0 lb/a
1.0 lb/a 0.44 lb/100 sq ft/ 1.0 lb/a 0.31 lb/ manhole
± 1.0 lb/a 0.44 lb/100 sq ft/ 1.0 lb/a
1.0 lb/a 0.44 lb/100 sq ft/ 1.0 lb/a 0.31 lb/ manhole
1.0 lb/a 0.44 lb/100 sq ft/ 1.0 lb/a 0.31 lb/ manhole  0.075 lb/1,000 sq ft, 1.2 lb/a
1.0 lb/a 0.44 lb/100 sq ft/ 1.0 lb/a 0.31 lb/ manhole  0.075 lb/1,000 sq ft, 1.2 lb/a  0.07126 a.i./1000 sq ft, 3.1 lb/a 0.0066 lb/animal
1.0 lb/a 0.44 lb/100 sq ft/ 1.0 lb/a 0.31 lb/ manhole  0.075 lb/1,000 sq ft, 1.2 lb/a  0.07126 a.i./1000 sq ft, 3.1 lb/a 0.0066 lb/animal
1.0 lb/a 0.44 lb/100 sq ft/ 1.0 lb/a 0.31 lb/ manhole  0.075 lb/1,000 sq ft, 1.2 lb/a  0.07126 a.i./1000 sq ft, 3.1 lb/a 0.0066 lb/animal
1.0 lb/a 0.44 lb/100 sq ft/ 1.0 lb/a 0.31 lb/ manhole  0.075 lb/1,000 sq ft, 1.2 lb/a  0.07126 a.i./1000 sq ft, 3.1 lb/a 0.0066 lb/animal
1.0 lb/a  0.44 lb/100 sq ft/ 1.0 lb/a  0.31 lb/ manhole  0.075 lb/1,000 sq ft, 1.2 lb/a  0.07126 a.i./1000 sq ft, 3.1 lb/a  0.0066 lb/animal  2.5 lb/a  1.9 lb/a
1.0 lb/a  0.44 lb/100 sq ft/ 1.0 lb/a  0.31 lb/ manhole  0.075 lb/1,000 sq ft, 1.2 lb/a  0.07126 a.i./1000 sq ft, 3.1 lb/a  0.0066 lb/animal  2.5 lb/a  1.9 lb/a  1.0 lb/a

cause different calculation methods were used.

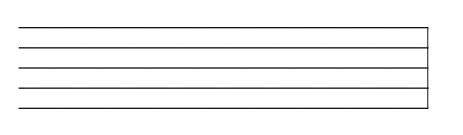
ed as some acres are treated more than once.

с	Max labeled rate from APPENDIX 1-3. CYP Master Use Table
II	Bracketed rates are calculated (see APPENDIX 1-3. CYP Master Use Table).
NR*	Surveyed by the indicated source in the years listed, but no usage reported.
**	Site not surveyed at national level



с
NR*
**

Max labeled rate from APPENDIX 1-3. CYP Master Use Table
Bracketed rates are calculated (see APPENDIX 1-3. CYP Master Use Table).
Surveyed by the indicated source in the years listed, but no usage reported.
Site not surveyed at national level



Cron/Site
Crop/Site
ALFALFA
ALMOND
APPLE
ASPARAGUS
BEANS
BEETS (UNSPECIFIED; TABLE OR SUGAR)
"grown for seed"
SUGAR BEETS
CARROT Grown for Seed (INCLUDING
TOPS) CHERRIES
CITRUS
CLOVER (GROWN FOR SEED)
COLE CROPS (EXCLUDES CAULIFLOWER
AND BRUSSELS SPROUTS)
BRUSSELS SPROUTS
CAULI-FLOWER
CORN (ALL)
COTTON
CRANBERRY
CUCUMBER
FIGS
FILBERTS/ HAZELNUT
FRUITS & NUTS
GINSENG (MEDCINAL)
GRAPES
GRASS FORAGE/ FODDER/HAY
LEGUME VEGETABLES
MINT/ PEPPERMINT/ SPEARMINT
NECTARINE
ONIONS
PEACH
PEANUT
PEAR
PEAS
PECANS
PEPPER
PINEAPPLE
PLUM/PRUNE
PUMPKIN
RADISH
RUTABAGA
SORGHUM GRAIN
SOYBEAN
STRAW-BERRIES



SUNFLOWER
SWEET POTATO
TOBACCO
TRITICALE
TURNIP
WALNUTS
WHEAT
NonAG
Crop/Site
AGRICULTURAL FARM PREMISES).
BEEF/RANGE/ FEEDER CATTLE (MEAT)/
DAIRY CATTLE (NON-LACTATING)
CHRISTMAS TREE PLANTATIONS
COMMERCIAL/INSTITUTION-AL/
INDUSTRIAL PREMISES/ EQUIP. (INDOOR)
COMMERCIAL/INSTITUTIONAL
/INDUSTRIAL PREMISES/EQUIP.
(OUTDOOR) CONIFERS AND DECIDUOUS TREES;
PLANTATION, NURSERY
FOOD PROCESSING PLANT PREMISES
(NONFOOD CONTACT)
FOREST PLANTINGS (REFORESTATION
PROGRAMS) (TREE FARMS, TREE
PLANTATION, ETC.)
FOREST TREES (SOFTWOODS, CONIFERS)
GOLF COURSE TURF
GREENHOUSE
HOUSEHOLD/DOMESTIC DWELLINGS
INDOOR PREMISES
HYBRID COTTONWOOD/ POPLAR
PLANTATIONS
MOSQUITO CONTROL;
HOUSEHOLD/DOMESTIC DWELLINGS
OUTDOOR PREMISES; RECREATIONAL
AREAS NONAGRICULTURAL OUTDOOR
BUILDINGS/STRUCTURES
NURSERY-STOCK: Ornamental nursery
stock annuals, perennials and woody plants
being grown in the field, in ball and burlap
or in containers outdoor and in
greenhouses
ORNAMENTAL AND/OR SHADE TREES,
HERBACEOUS PLANTS
ORNAMENTAL LAWNS AND TURF, SOD
FARMS (TURF)
ORNAMENTAL NON- FLOWERING PLANTS

ORNAMENTAL WOODY SHRUBS AND VINES



POULTRY LITTER
SEED ORCHARD TREES
RIGHTS OF WAY, ROAD MEDIANS
SEWER Manhole covers and walls
UTILITIES
WIDE AREA/ GENERAL OUTDOOR
TREATMENT
WOOD PROTECTION TREATMENT TO
BUILDINGS/PRODUCTS OUTDOOR



Table 1. National Chiorpyrifos Agricultural Usage by Crop. Data Averaged Over Reported Years.

Table 1. National Chlorpyrifos Agricultural Usage by Crop. Data Averaged Over Reported Years.
Стор
Root and Tuber Vegetables
Sugar Beets
Carrots (Grown for Seed)
Beets (Garden/Table)
Ginseng (Medical)
Radish
Rutabaga
Sweet Potato
Turnips
Bulb Vegetables
Onions
Cole Crops
Cole Crops (excluding Cauliflower and Brussels Sprouts)
Cabbage
Broccoli*
Other Cole Crops
Brussels Sprouts*
Cauliflower*
Legume Vegetables
Dry Beans/Peas
Beans (Snap, Bush, Pole, Strin
Peas (Fresh/Green/Sweet)
Soybeans
Fruiting Vegetables
Peppers
Cucurbit Vegetables
Cucumbers
Pumpkins
Fruit and Nut Trees
Almonds*
Apples
Cherries
Citrus
Grapefruit
Lemons*
Oranges
Tangelos
Tangerines
Figs*
Hazelnuts

## SUGAR BEETS CARROT Grown for Seed (INCLUDING TOPS) BEETS (UNSPECIFIED; TABLE OR SUGAR) "grown for seed" GINSENG (MEDCINAL) RADISH RUTABAGA **SWEET POTATO TURNIP** ONIONS COLE CROPS (EXCLUDES CAULIFLOWER AND BRUSSELS COLE CROPS (EXCLUDES CAULIFLOWER AND BRUSSELS SPROUTS) **BRUSSELS SPROUTS** CAULI-FLOWER LEGUME VEGETABLES **BEANS** PEAS SOYBEAN PEPPER CUCUMBER **PUMPKIN** FRUITS & NUTS ALMOND APPLE CHERRIES **CITRUS CITRUS CITRUS**

CITRUS CITRUS CITRUS FIGS

FILBERTS/ HAZELNUT

Nectarines*
Peaches
Pears
Pecans
Plums/Prunes*
Walnuts
Pineapple
Berries and Small Fruit
Grapes*
Strawberries
Cranberries
Cereal Grains
Corn
Field Corn
Sweet Corn
Pop Corn
Sorghum (Milo)
Wheat
Wheat, Spring
Wheat, Winter
Triticale
Grass Forage/Fodder/Hay
Non-Grass Animal Feeds
Alfalfa
Clover (Grown for Seed)
Oil Seed Group
Cotton
Sunflowers
Stalk, Stem, and Leaf Petiole Vegetable Group
Asparagus
Misc Crops
Peanuts
Tobacco
Mint (Peppermint and Spearmint)

NECTARINE
PEACH
PEAR
PECANS
PLUM/PRUNE
WALNUTS
PINEAPPLE
_
GRAPES
STRAW-BERRIES
CRANBERRY
CORN (ALL)
CORN (ALL)
CORN (ALL)
CORN (ALL)
SORGHUM GRAIN
WHEAT
WHEAT
WHEAT
TRITICALE
GRASS FORAGE/ FODDER/HAY
ALFALFA
CLOVER (GROWN FOR SEED)
соттом
SUNFLOWER
ASPARAGUS
PEANUT
TOBACCO
MINT/ PEPPERMINT/ SPEARMINT

### **Print Version**

Site/Pest Information For Ingredient 059101 / 2921-88-2 / Chlorpyrifos

### Site Information

Go to Pest Info Site Code

Site Name

**BUILDING FOUNDATIONS (SOIL TREATMENT)** 

DOMESTIC DWELLINGS (INDOOR)

DOMESTIC DWELLINGS (OUTDOOR)

DOMESTIC DWELLINGS (PERIMETER SOIL TREATMENT)

PLUMBING INSTALLATIONS

UTILITY POLES (FOLIAR TREATMENT)

UTILITY POLES (SOIL TREATMENT)

WOOD (CONSTRUCTION) (SOIL CONTACT NON-FUMIGATION TREATMENT)

WOOD COLUMNS (SOIL CONTACT NONFUMIGATION TREATMENT)

WOOD FENCE POSTS (SOIL CONTACT NONFUMIGATION TREATMENT)

WOOD FLOORING (SOIL CONTACT NONFUMIGATION TREATMENT)

WOOD PATIOS (SOIL CONTACT NONFUMIGATION TREATMENT)

WOOD PORCHES (SOIL CONTACT NONFUMIGATION TREATMENT)

WOOD SIDING (SOIL CONTACT NONFUMIGATION TREATMENT)

WOOD STRUCTURAL PARTS (SOIL CONTACT NONFUMIGATION TREATMENT)

WOOD STRUCTURES (MASONRY JOINTS) (SOIL CONTACT NONFUMIGATION TREATMENT)

WOOD SUPPORTS (SOIL CONTACT NONFUMIGATION TREATMENT)

**AERIAL APPLICATION** 

**BARLEY** 

**BEEHIVES** 

**CABLES** 

CITRUS (HYBRIDS) (FOLIAR TREATMENT)

CORN (FIELD) (WATER TREATMENT)

CORN (SEED CROP) (WATER TREATMENT)

CORN (SWEET) (WATER TREATMENT)

COTTON (WATER TREATMENT)

FORMULATING USE ONLY NO SITE

GINSENG (FOLIAR TREATMENT)

GINSENG (PLANT BED)

GINSENG (PLANT BED)

IRRIGATION SUPPLY SYSTEMS (WATER TREATMENT)

MANUFACTURING USE ONLY NO SITE

MANUFACTURING USE ONLY NO SITE

ORCHARDS (CITRUS) (SOIL TREATMENT)

**POWER PLANTS** 

SOYBEANS (WATER TREATMENT)

TELEPHONE CABLE CLOSURES (UNDERGROUND)

Status	Status Date	Registration #
Withdrawn	12/31/2007	33658-28
Withdrawn	3/30/2007	19713-518
Withdrawn	12/31/2007	33658-28
Withdrawn	12/31/2007	33658-28
Withdrawn	12/31/2007	33658-28
Withdrawn	3/19/2009	45600-1
Withdrawn	12/31/2007	33658-28
Withdrawn	6/12/1997	33658-28
Withdrawn	12/31/2007	33658-28
Withdrawn	6/12/1997	33658-28
Withdrawn	12/31/2007	33658-28
Withdrawn	6/12/1997	33658-28
Pending	7/28/2014	89168-20
Pending	6/8/2004	04WY06
Pending	9/22/2008	08HI02
Pending	7/5/2006	13283-17
Pending	1/14/2016	66222-233
Pending	7/28/2014	89168-20
Pending		19713-LIR
Pending	7/19/2010	
Pending	10/6/2008	
Pending	5/6/2009	09WI05
Pending	7/28/2014	
Pending		19713-LIR
Pending		82633-RT
Pending	7/28/2014	
Pending		13283-17
Pending	7/28/2014	
Pending	7/5/2006	13283-17

TELEVISION CABLE PEDESTALS (UNDERGROUND)

**UTILITY AREAS** 

**UTILITY BUILDINGS** 

VAULTS (UNDERGROUND)

CORN (FIELD) (FOLIAR TREATMENT)

CORN (SWEET) (FOLIAR TREATMENT)

FOOD PROCESSING PLANTS (RESIDUAL CRACK AND CREVICE TREATMENT)

FOOD PROCESSING PLANTS (RESIDUAL SPOT TREATMENT-EDIBLE AREAS)

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Pending	7/5/2006 13283-17
Pending	8/3/2017 53883-407
Pending	8/3/2017 53883-407
Pending	7/5/2006 13283-17
Denied	7/13/2007 499-367
Denied	7/13/2007 499-367
Denied	2/7/2008 499-419
Denied	2/7/2008 499-419
Canceled	8/10/1976 CA760116
Canceled	4/17/1977 MS770001
Canceled	8/31/1977 MS770007
Canceled	8/31/1977 NV770009
Canceled	9/7/1977 AR770007
Canceled	12/8/1977 FL770025
Canceled	5/1/1978 MS780005
Canceled	5/30/1978 IN780005
Canceled	6/1/1978 IA780002
Canceled	6/6/1978 LA780004
Canceled	6/13/1978 AR780011
Canceled	6/20/1978 WA780007
Canceled	7/26/1978 KS780001
Canceled	8/3/1978 MN780003
Canceled	8/3/1978 SD780003
Canceled	8/7/1978 MO780007
Canceled	8/21/1978 ID780014
Canceled	8/28/1978 LA780016
Canceled	9/3/1978 NE780007
Canceled	10/9/1978 AZ780020
Canceled	10/17/1978 OR780032
Canceled	1/21/1979 KS780021
Canceled	7/23/1979 MN790004
Canceled	10/14/1979 AZ790021
Canceled	11/11/1979 TX790029
Canceled	12/9/1979 MO780006
Canceled	12/9/1979 NE780017
Canceled	2/21/1980 AR800002
Canceled	4/10/1980 AZ790034
Canceled	5/15/1980 KS800006
Canceled	6/3/1980 WY800003
Canceled	8/1/1980 CO800012
Canceled	8/1/1980 NE800015
Canceled	12/19/1980 ND800021
Canceled	12/29/1980 GA800027
Canceled	12/29/1980 GA800028
Canceled	12/29/1980 MN800020
Canceled	1/6/1981 TX800042
Canceled	2/3/1981 VA810003

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Canceled	2/25/1981 AL810002
Canceled	3/31/1981 SC810003
Canceled	3/31/1981 SC810004
Canceled	4/23/1981 OK810001
Canceled	5/4/1981 NC810002
Canceled	5/19/1981 AL800025
Canceled	5/27/1981 MT810017
Canceled	6/1/1981 WA810036
Canceled	6/22/1981 CO810017
Canceled	6/29/1981 AL810005
Canceled	7/14/1981 SC810010
Canceled	8/4/1981 KS810029
Canceled	8/6/1981 NM810010
Canceled	9/8/1981 TX810033
Canceled	9/28/1981 IA810012
	· ·
Canceled Canceled	10/12/1981 LA810034
	1/11/1982 OR820001
Canceled	2/18/1982 NE820001
Canceled	2/26/1982 SD820001
Canceled	4/6/1982 UT820004
Canceled	5/26/1982 FL820027
Canceled	6/28/1982 ID820018
Canceled	6/30/1982 ND820012
Canceled	6/15/1983 AR830019
Canceled	8/25/1983 WA830030
Canceled	10/23/1983 OR830035
Canceled	3/6/1984 MS840004
Canceled	4/27/1984 DE840003
Canceled	5/30/1984 NJ840008
Canceled	6/4/1984 PA840008
Canceled	6/8/1984 MO840004
Canceled	9/27/1984 MD840004
Canceled	5/16/1985 WA850025
Canceled	2/26/1987 AR870001
Canceled	7/1/1987 52-239
Canceled	7/1/1987 3314-49
Canceled	12/29/1987 FL870020
Canceled	12/31/1987 39497-11
Canceled	6/15/1989 CA890017
Canceled	6/15/1989 CA890018
Canceled	6/22/1989 CA890019
Canceled	10/10/1989 3776-54
Canceled	10/10/1989 3776-55
Canceled	10/10/1989 4887-138
Canceled	10/10/1989 34704-498
Canceled	10/10/1989 34704-549
Canceled	10/10/1989 50450-13

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**AERIAL APPLICATION (ROTARY AIRCRAFT)** 

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AFRICAN VIOLETS (CONTAINERIZED)

AFRICAN VIOLETS (CONTAINERIZED)

AFRICAN VIOLETS (GREENHOUSE-FOLIAR TREATMENT)

AGRICULTURAL (NONCROP AREAS) (FOLIAR TREATMENT)

AGRICULTURAL BUILDINGS (INDOOR)

AGRICULTURAL BUILDINGS (INDOOR)

AGRICULTURAL BUILDINGS (INDOOR)

AGRICULTURAL BUILDINGS (OUTDOOR)

AIR CONDITIONING EQUIPMENT (PAD MOUNTED) (UNDERGROUND)

**AIRCRAFT** 

Canceled	10/10/1989 KY780012
Canceled	6/26/1990 AZ900006
Canceled	12/31/1992 CA900007
Canceled	8/31/1994 51793-179
Canceled	10/5/1995 1769-267
Canceled	10/12/1995 1769-291
Canceled	10/12/1995 1769-282
Canceled	7/24/1996 34704-561
Canceled	7/24/1996 4816-594
Canceled	7/24/1996 4816-593
Canceled	6/15/1998 769-714
Canceled	7/21/1998 10107-53
Canceled	5/9/2000 67760-21
Canceled	8/25/2000 10370-64
Canceled	12/1/2000 34704-413
Canceled	12/1/2000 34704-541
Canceled	12/1/2000 42519-18
Canceled	1/25/2001 48273-16
Canceled	7/11/2001 769-641
Canceled	1/25/2002 5481-121
Canceled	5/22/1978 IL780002
Canceled	5/30/1978 IN780005
Canceled	6/1/1978 IA780002
Canceled	9/3/1978 NE780007
Canceled	4/15/1979 CO790001
Canceled	8/20/1979 GA790019
Canceled	11/2/1998 ND980006
Canceled	12/1/2000 42519-18
Canceled	1/25/2001 48273-16
Canceled	7/11/2001 51036-261
Canceled	5/22/1978 IL780002
Canceled	4/15/1979 CO790001
Canceled	8/20/1979 GA790019
Canceled	11/2/1998 ND980006
Canceled	12/1/2000 42519-18
Canceled	1/25/2001 48273-16
Canceled	7/11/2001 51036-261
Canceled	1/25/2001 499-364
Canceled	1/25/2001 499-423
Canceled	1/25/2001 499-364
Canceled	8/31/1994 51793-179
Canceled	11/30/1992 46813-35
Canceled	1/25/2001 46813-42
Canceled	1/25/2001 46813-38
Canceled	7/11/2001 47332-1
Canceled	7/11/2001 45600-17
Canceled	9/12/2001 5602-204

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AIRCRAFT (FEED/FOOD-EMPTY) (RESIDUAL GENERAL TREATMENT)
AIRCRAFT (NON-RESIDUAL CONTACT TREATMENT)
AIRCRAFT (NON-RESIDUAL CONTACT TREATMENT)
AIRCRAFT (NON-RESIDUAL CONTACT TREATMENT)
AIRCRAFT (NON-RESIDUAL SPACE TREATMENT)
AIRCRAFT (NONFEED/NONFOOD) (NON-RESIDUAL CONTACT TREATMENT)
AIRCRAFT (NONFEED/NONFOOD) (NON-RESIDUAL CONTACT TREATMENT)
AIRCRAFT (NONFEED/NONFOOD) (NON-RESIDUAL CONTACT TREATMENT)
AIRCRAFT (NONFEED/NONFOOD) (NON-RESIDUAL SPACE TREATMENT)
AIRCRAFT (NONFEED/NONFOOD) (RESIDUAL GENERAL TREATMENT)
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Canceled	8/10/1993 29909-28
Canceled	8/31/1994 48760-24
Canceled	2/6/1998 499-237
Canceled	1/25/2001 499-379
Canceled	1/25/2001 499-147
Canceled	1/25/2001 11715-163
Canceled	1/25/2001 11715-312
Canceled	3/8/2001 10807-118
Canceled	7/11/2001 44446-51
Canceled	7/11/2001 11623-40
Canceled	7/19/1995 6175-49
Canceled	7/24/1996 9444-91
Canceled	8/25/2000 499-457
Canceled	7/19/1995 6175-49
Canceled	10/10/1989 45385-58
Canceled	3/16/1993 499-278
Canceled	7/24/1996 7234-151
Canceled	11/30/1992 6175-48
Canceled	8/29/1988 47612-4
Canceled	12/19/1988 35138-48
Canceled	10/10/1989 861-113
Canceled	10/10/1989 1459-97
Canceled	10/10/1989 3298-36
Canceled	10/10/1989 3624-174
Canceled	10/10/1989 7056-124
Canceled	10/10/1989 7056-143
Canceled	10/10/1989 9143-84
Canceled	10/10/1989 9143-86
Canceled	10/10/1989 9591-103
Canceled	10/10/1989 9591-105
Canceled	10/10/1989 9591-106
Canceled	10/10/1989 9591-116
Canceled	10/10/1989 9782-70
Canceled	10/10/1989 12192-3
Canceled Canceled	10/10/1989 48760-1
Canceled	1/22/1991 52740-7
Canceled Canceled	9/30/1991 788-46
Canceled Canceled	9/30/1991 48211-68
Canceled Canceled	9/30/1991 9143-85
Canceled Canceled	9/30/1991 48760-14
	9/30/1991 35138-46
Canceled Canceled	9/30/1991 9782-69 11/30/1992 5602-155
Canceled Canceled	11/30/1992 334-517
Canceled Canceled	11/30/1992 334-517
Canceled Canceled	11/30/1992 334-515
Canceled Canceled	8/31/1994 51793-102
Cariceleu	0/21/1324 21/22-107

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AIRCRAFT (NONFEED/NONFOOD) (RESIDUAL GENERAL TREATMENT) AIRCRAFT (UNSPECIFIED) (BAIT APPLICATION) AIRFIELDS (LANDING LIGHTS) **ALFALFA (FOLIAR TREATMENT) ALFALFA (FOLIAR TREATMENT) ALFALFA (FOLIAR TREATMENT) ALFALFA (FOLIAR TREATMENT)** 

Canceled	7/19/1995 5011-158
Canceled	7/24/1996 10370-60
Canceled	7/24/1996 7234-151
Canceled	7/24/1996 67153-5
Canceled	7/24/1996 334-518
Canceled	7/9/1997 4816-694
Canceled	7/9/1997 432-656
Canceled	7/9/1997 432-654
Canceled	7/9/1997 432-652
Canceled	7/9/1997 432-651
Canceled	7/9/1997 432-646
Canceled	7/9/1997 432-680
Canceled	7/9/1997 432-676
Canceled	7/9/1997 432-624
Canceled	7/9/1997 432-589
Canceled	2/6/1998 499-359
Canceled	3/9/1998 499-271
Canceled	7/21/1998 50034-1
Canceled	7/21/1998 45036-1
Canceled	7/21/1998 67572-14
Canceled	7/29/1999 1553-133
Canceled	8/25/2000 527-128
Canceled	8/25/2000 432-622
Canceled	8/25/2000 1685-94
Canceled	8/25/2000 9250-30
Canceled	12/1/2000 769-607
Canceled	12/1/2000 432-566
Canceled	1/25/2001 2155-127
Canceled	1/25/2001 11715-299
Canceled	1/25/2001 11694-91
Canceled	1/25/2001 3862-93
Canceled	1/25/2001 6959-73
Canceled	1/25/2001 499-315
Canceled	1/25/2001 499-292
Canceled	1/25/2001 26693-5
Canceled	3/8/2001 10807-119
Canceled	7/11/2001 40208-1
Canceled	7/11/2001 1270-217
Canceled	7/11/2001 45385-47
Canceled	9/12/2001 9444-93
Canceled	1/25/2002 10807-116
Canceled	1/25/2001 499-448
Canceled	7/24/1996 62451-2
Canceled	1/21/1979 KS780021
Canceled	12/9/1979 NE780017
Canceled	7/20/1998 MS980007
Canceled	5/9/2000 67760-21

**ALFALFA (FOLIAR TREATMENT)** 

**ALFALFA (FOLIAR TREATMENT)** 

ALFALFA (FOLIAR TREATMENT)

ALFALFA (SEED CROP FOLIAR TREATMENT)

ALFALFA (SEED CROP FOLIAR TREATMENT)

ALFALFA (WATER APPLICATION)

ALFALFA (WATER APPLICATION)

ALMONDS (DELAYED DORMANT APPLICATION)

ALMONDS (DELATED DOMINANT ATTECATION)

ALMONDS (DELAYED DORMANT APPLICATION)

ALMONDS (DELAYED DORMANT APPLICATION)

ALMONDS (DELAYED DORMANT APPLICATION)

ALMONDS (DORMANT APPLICATION)

**ALMONDS (DORMANT APPLICATION)** 

ALMONDS (DORMANT APPLICATION)

ALMONDS (DORMANT APPLICATION)

**ALMONDS (DORMANT APPLICATION)** 

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**ALMONDS (DORMANT APPLICATION)** 

**ALMONDS (DORMANT APPLICATION)** 

ALMONDS (DORMANT APPLICATION)

ALMONDS (DORMANT APPLICATION)

**ALMONDS (FOLIAR TREATMENT)** 

ALMONDS (FOLIAR TREATMENT)

ALMONDS (FOLIAR TREATMENT)

ALMONDS (FOLIAR TREATMENT)

**ALMONDS (FOLIAR TREATMENT)** 

**ALMONDS (FOLIAR TREATMENT)** 

Canceled	12/1/2000	62719-23
Canceled	12/1/2000	42519-18
Canceled	1/25/2001	48273-16
Canceled	8/10/1976	
Canceled	8/31/1977	
Canceled	7/20/1998	
Canceled		67760-21
Canceled	12/4/1979	
Canceled	12/1/2000	42519-18
Canceled	12/1/2000	
Canceled	1/25/2001	
Canceled	9/12/2001	
Canceled	9/12/2001	
Canceled	12/4/1979	
Canceled	12/1/2000	
Canceled	12/1/2000	62719-269
Canceled	12/1/2000	
Canceled	12/1/2000	62719-284
Canceled	12/1/2000	67760-32
Canceled	12/1/2000	42519-18
Canceled	12/1/2000	53883-37
Canceled	1/25/2001	802-530
Canceled	1/25/2001	909-94
Canceled	1/25/2001	48273-16
Canceled	1/25/2001	28293-321
Canceled	9/12/2001	46515-51
Canceled	9/12/2001	8845-30
Canceled	9/12/2001	9688-96
Canceled	9/12/2001	7401-448
Canceled	6/15/1989	CA890017
Canceled	6/15/1989	CA890018
Canceled	1/22/1992	CA910016
Canceled	12/1/2000	62719-56
Canceled	12/1/2000	62719-269
Canceled	12/1/2000	62719-23
Canceled	12/1/2000	62719-284
Canceled	12/1/2000	67760-32
Canceled	12/1/2000	42519-18
Canceled	12/1/2000	53883-37

**ALMONDS (FOLIAR TREATMENT) ALMONDS (FOLIAR TREATMENT)** ALMONDS (FOLIAR TREATMENT) **ALMONDS (FOLIAR TREATMENT) ALMONDS (FOLIAR TREATMENT)** ALMONDS (FOLIAR TREATMENT) **ALMONDS (FOLIAR TREATMENT) ALMONDS (FOLIAR TREATMENT) ALMONDS (SOIL TREATMENT) ALMONDS (SOIL TREATMENT) ALMONDS (SOIL TREATMENT) ALMONDS (WATER APPLICATION) AMUSEMENT PARKS** ANIMAL LIVING QUARTERS ANIMAL LIVING QUARTERS ANIMAL LIVING QUARTERS ANIMAL QUARTERS (ENCLOSED PREMISE TREATMENT) ANIMAL QUARTERS (ENCLOSED PREMISE TREATMENT) **ANIMAL RUNWAYS** ANIMAL STABLES (UNSPECIFIED) (ENCLOSED PREMISE TREATMENT) ANIMALS (UNSPECIFIED) ANT DENS **ANT DENS ANT DENS** ANT DENS ANT DENS ANT DENS **ANT DENS** ANT DENS ANT DENS ANT DENS **ANT DENS** ANT DENS/HILLS/MOUNDS (ALL OR UNSPECIFIED) ANT DENS/HILLS/MOUNDS (ALL OR UNSPECIFIED)

Canceled	12/1/2000 62719-163
Canceled	1/25/2001 499-270
Canceled	1/25/2001 499-317
Canceled	1/25/2001 48273-16
Canceled	1/25/2001 28293-321
Canceled	9/12/2001 8845-30
Canceled	9/12/2001 9688-96
Canceled	9/12/2001 7401-448
Canceled	12/1/2000 62719-23
Canceled	12/1/2000 42519-18
Canceled	1/25/2001 48273-16
Canceled	7/3/1983 CA830015
Canceled	7/24/1996 334-518
Canceled	8/31/1994 334-456
Canceled	7/9/1997 4077-103
Canceled	1/25/2002 10807-187
Canceled	10/10/1989 4990-68
Canceled	8/25/2000 499-466
Canceled	7/11/2001 45385-54
Canceled	11/30/1992 6175-48
Canceled	5/19/1986 NE860001
Canceled	12/31/1987 46515-2
Canceled	1/22/1991 52740-7
Canceled	1/22/1991 572-286
Canceled	8/10/1993 29909-28
Canceled	12/1/2000 34704-765
Canceled	12/1/2000 34704-748
Canceled	12/1/2000 51036-119
Canceled	1/25/2001 499-147
Canceled	7/11/2001 35512-38
Canceled	7/11/2001 35512-39
Canceled	9/12/2001 9444-93
Canceled	10/10/1989 788-18
Canceled	10/10/1989 3314-63
Canceled	10/10/1989 5719-108
Canceled	1/22/1991 50383-8
Canceled	1/22/1991 52740-7
Canceled	9/30/1991 9172-9
Canceled	11/16/1992 499-299
Canceled	11/30/1992 5602-155
Canceled	11/30/1992 6218-54
Canceled	11/30/1992 9404-70
Canceled	7/19/1995 9367-49
Canceled	7/19/1995 5011-158
Canceled	7/19/1995 35512-33
Canceled	7/19/1995 746-125
Canceled	7/19/1995 869-204

ANT DENS/HILLS/MOUNDS (ALL OR UNSPECIFIED)
ANT DENS/HILLS/MOUNDS (ALL OR UNSPECIFIED)
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ANT DENS/HILLS/MOUNDS (ALL OR UNSPECIFIED)
ANT HILLS
ANT HILLS
ANT HILLS
AINT TILLS

Canceled	7/24/1996 10370-242
Canceled	7/24/1996 1769-328
Canceled	7/9/1997 3282-78
Canceled	7/9/1997 432-652
Canceled	7/21/1998 572-345
Canceled	7/21/1998 34901-4
Canceled	7/21/1998 45036-1
Canceled	7/21/1998 788-19
Canceled	7/29/1999 11556-100
Canceled	7/19/2000 46515-28
Canceled	8/25/2000 9250-30
Canceled	12/1/2000 67760-5
Canceled	12/1/2000 62719-269
Canceled	12/1/2000 769-666
Canceled	12/1/2000 67760-24
Canceled	12/1/2000 769-578
Canceled	12/1/2000 769-826
Canceled	12/1/2000 53883-49
Canceled	12/1/2000 67760-32
Canceled	12/1/2000 51036-303
Canceled	1/25/2001 59144-9
Canceled	1/25/2001 2155-127
Canceled	1/25/2001 11746-15
Canceled	1/25/2001 192-173
Canceled	1/25/2001 11715-327
Canceled	1/25/2001 68688-40
Canceled	1/25/2001 5887-144
Canceled	1/25/2001 8660-203
Canceled	1/25/2001 499-292
Canceled	1/25/2001 499-270
Canceled	1/25/2001 869-209
Canceled	1/25/2001 869-205
Canceled	1/25/2001 4822-498
Canceled	7/11/2001 769-699
Canceled	7/11/2001 402-130
Canceled	7/11/2001 769-641
Canceled	7/11/2001 9404-73
Canceled	7/11/2001 9404-71
Canceled	9/12/2001 9688-88
Canceled	9/12/2001 49585-17
Canceled	9/12/2001 71949-9
Canceled	9/12/2001 7401-448
Canceled	1/25/2002 16-146
Canceled	1/25/2002 16-101
Canceled	5/10/1982 TX820020
Canceled	8/29/1988 47612-4
Canceled	12/19/1988 35138-51

**ANT HILLS** 

Canceled	10/10/1989 4-216	
Canceled	10/10/1989 550-163	
Canceled	10/10/1989 1459-97	
Canceled	10/10/1989 3314-64	
Canceled	10/10/1989 7056-124	
Canceled	10/10/1989 9591-129	
Canceled	10/10/1989 9782-59	
Canceled	10/10/1989 48760-1	
Canceled	9/30/1991 788-46	
Canceled	8/31/1992 7122-119	
Canceled	11/30/1992 746-126	
Canceled	11/30/1992 1203-70	
Canceled	11/30/1992 6175-48	
Canceled	8/10/1993 48941-7	
Canceled	8/10/1993 4000-107	
Canceled	8/31/1994 51793-102	
Canceled	8/31/1994 51793-179	
Canceled	8/31/1994 9591-92	
Canceled	8/31/1994 9782-20	
Canceled	8/31/1994 9782-28	
Canceled	7/19/1995 6175-49	
Canceled	7/19/1995 869-208	
Canceled	7/19/1995 49585-20	
Canceled	7/24/1996 10370-244	
Canceled	7/24/1996 557-2007	
Canceled	7/24/1996 9444-91	
Canceled	7/24/1996 67153-5	
Canceled	11/27/1996 62719-7	
Canceled	7/9/1997 432-656	
Canceled	7/9/1997 432-654	
Canceled	7/9/1997 432-651 7/9/1997 432-647	
Canceled Canceled	7/9/1997 432-647 7/9/1997 432-646	
Canceled	7/9/1997 432-646	
Canceled	7/9/1997 432-624	
Canceled	9/3/1997 62719-200	
Canceled	7/21/1998 50034-1	
Canceled	7/21/1998 67572-14	
Canceled	7/29/1999 1553-133	
Canceled	8/25/2000 527-128	
Canceled	8/25/2000 8845-34	
Canceled	8/25/2000 10370-64	
Canceled	8/25/2000 432-660	
Canceled	8/25/2000 432-659	
Canceled	8/25/2000 432-658	
Canceled	8/25/2000 432-681	
Canceled	8/25/2000 432-622	
	. ,	

**ANT HILLS** 

**ANT HILLS ANT HILLS** 

**ANT HILLS** 

Canceled	8/25/2000 8845-85
Canceled	8/25/2000 9198-133
Canceled	8/25/2000 9198-136
Canceled	8/25/2000 499-447
Canceled	8/25/2000 10370-142
Canceled	12/1/2000 62719-56
Canceled	12/1/2000 1021-1668
Canceled	12/1/2000 1812-443
Canceled	12/1/2000 769-607
Canceled	12/1/2000 769-962
Canceled	12/1/2000 62719-235
Canceled	12/1/2000 34704-523
Canceled	12/1/2000 67760-25
Canceled	12/1/2000 432-567
Canceled	12/1/2000 432-568
Canceled	12/1/2000 432-569
Canceled	12/1/2000 769-880
Canceled	12/1/2000 769-828
Canceled	12/1/2000 62719-23
Canceled	12/1/2000 51036-223
Canceled	12/1/2000 1812-428
Canceled	12/1/2000 67760-23
Canceled	12/1/2000 10350-12
Canceled	12/1/2000 53883-55
Canceled	12/1/2000 42519-18
Canceled	12/1/2000 53883-37
Canceled	12/1/2000 62719-163
Canceled	1/25/2001 70-184
Canceled	1/25/2001 70-286
Canceled	1/25/2001 11715-299
Canceled	1/25/2001 59144-8
Canceled	1/25/2001 802-595
Canceled	1/25/2001 499-423
Canceled	1/25/2001 802-530
Canceled	1/25/2001 499-147
Canceled	1/25/2001 869-221
Canceled	1/25/2001 59144-37
Canceled	1/25/2001 13283-8
Canceled	1/25/2001 11746-16
Canceled	1/25/2001 11715-163
Canceled	1/25/2001 2724-486
Canceled	1/25/2001 8660-14
Canceled	1/25/2001 8660-13
Canceled	1/25/2001 4822-263
Canceled	1/25/2001 192-142
Canceled	1/25/2001 192-141
Canceled	1/25/2001 802-532

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**ANT HILLS** 

Canceled	1/25/2001	8660-152
Canceled	1/25/2001	3862-93
Canceled	1/25/2001	2724-327
Canceled	1/25/2001	8660-122
Canceled	1/25/2001	192-180
Canceled	1/25/2001	8660-232
Canceled	1/25/2001	13283-15
Canceled	1/25/2001	4822-238
Canceled	1/25/2001	4822-264
Canceled	1/25/2001	499-315
Canceled	1/25/2001	11715-312
Canceled	1/25/2001	192-192
Canceled	1/25/2001	654-131
Canceled	1/25/2001	869-184
Canceled	1/25/2001	869-210
Canceled	1/25/2001	869-158
Canceled	1/25/2001	8660-239
Canceled	1/25/2001	499-317
Canceled	1/25/2001	48273-16
Canceled	3/8/2001	10807-119
Canceled	7/11/2001	44446-51
Canceled	7/11/2001	
Canceled	7/11/2001	45385-54
Canceled	7/11/2001	1270-217
Canceled	7/11/2001	6959-67
Canceled	7/11/2001	9404-67
Canceled	7/11/2001	9404-66
Canceled	7/11/2001	9404-52
Canceled	7/11/2001	35138-53
Canceled	7/11/2001	45385-47
Canceled	7/11/2001	45385-21
Canceled	7/11/2001	769-662
Canceled	7/11/2001	9404-83
Canceled	9/12/2001	4-319
Canceled	9/12/2001	4-320
Canceled	9/12/2001	4-207
Canceled	9/12/2001	10404-30
Canceled	9/12/2001	34911-18
Canceled	9/12/2001	46515-51
Canceled	9/12/2001	49585-16
Canceled	9/12/2001	8845-30
Canceled	9/12/2001	71949-6
Canceled	9/12/2001	7401-364
Canceled	9/12/2001	9688-88
Canceled	9/12/2001	7401-416
Canceled	9/12/2001	71949-4
Canceled	9/12/2001	9688-95

**ANT HILLS ANT HILLS** APARTMENT BUILDINGS (INDOOR) (BAIT APPLICATION) **APARTMENTS (INDOOR) APARTMENTS (INDOOR) APARTMENTS (INDOOR) APARTMENTS (OUTDOOR) APARTMENTS (OUTDOOR)** APPLE (ORNAMENTAL) (FOLIAR TREATMENT) APPLES (BARK TREATMENT) APPLES (DELAYED DORMANT APPLICATION) APPLES (DORMANT) APPLES (DORMANT)

APPLES (DORMANT)

Canceled	9/12/2001 71949-1
Canceled	9/12/2001 1769-281
Canceled	9/12/2001 4-421
Canceled	1/25/2002 16-139
Canceled	1/25/2002 239-2633
Canceled	1/25/2002 10807-116
Canceled	1/25/2002 239-2423
Canceled	1/25/2002 239-2513
Canceled	1/25/2002 239-2635
Canceled	1/25/2002 16-172
Canceled	7/29/2002 45600-11
Canceled	7/29/2002 28293-266
Canceled	7/29/2002 74180-1
Canceled	7/29/2002 74180-2
Canceled	7/29/2002 48273-13
Canceled	7/29/2002 48273-19
Canceled	7/29/2002 70907-2
Canceled	7/29/2002 70907-9
Canceled	7/19/1995 6248-17
Canceled	7/1/1987 9782-3625
Canceled	10/10/1989 3776-44
Canceled	10/10/1989 5693-54
Canceled	7/1/1987 9782-3625
Canceled	10/10/1989 5693-54
Canceled	3/8/2001 10807-118
Canceled	12/1/2000 62719-269
Canceled	12/1/2000 62719-284
Canceled	1/25/2001 28293-321
Canceled	9/12/2001 9688-96
Canceled	9/12/2001 7401-448
Canceled	1/25/2002 239-2513
Canceled	1/25/2002 239-2635
Canceled	12/4/1979 CA790238
Canceled	3/22/1984 WA840019
Canceled	6/18/1984 OR840007
Canceled	7/20/1998 MS980007
Canceled	12/1/2000 62719-269
Canceled	12/1/2000 62719-23
Canceled	12/1/2000 42519-18
Canceled	1/25/2001 802-530
Canceled	1/25/2001 909-94
Canceled	1/25/2001 48273-16
Canceled	1/25/2001 28293-321
Canceled	9/12/2001 8845-30
Canceled	12/4/1979 CA790238
Canceled	3/22/1984 WA840019
Canceled	6/18/1984 OR840007

APPLES (DORMANT)
APPLES (DORMANT)
APPLES (FOLIAR TREATMENT)
APPLES (SOIL TREATMENT)
APPLES (SOIL TREATMENT)
ASH (BARK TREATMENT)
ASH (BARK TREATMENT)
ASH (BARK TREATMENT)
ASH (BARK TREATMENT)
ASH (BARK TREATMENT)
ASH (BARK TREATMENT)
ASH (FOLIAR TREATMENT)
ASPARAGUS (FERNS) (POSTHARVEST APPLICATION TO PLANTS)
ASPARAGUS (FOLIAR TREATMENT)

ASPARAGUS (FOLIAR TREATMENT) ASPARAGUS (FOLIAR TREATMENT) ASPARAGUS (FOLIAR TREATMENT) ASPARAGUS (FOLIAR TREATMENT)

Canceled	7/20/1998	MS980007
Canceled	12/1/2000	62719-56
Canceled	12/1/2000	62719-269
Canceled	12/1/2000	62719-23
Canceled	12/1/2000	42519-18
Canceled	1/25/2001	
Canceled	1/25/2001	909-94
Canceled	1/25/2001	
Canceled	1/25/2001	28293-321
Canceled	9/12/2001	
Canceled	9/12/2001	
Canceled	9/12/2001	
Canceled	9/12/2001	7401-448
Canceled	6/22/1989	
Canceled	12/1/2000	62719-56
Canceled	12/1/2000	62719-269
Canceled	12/1/2000	62719-284
Canceled	12/1/2000	67760-32
Canceled	12/1/2000	53883-37
Canceled	12/1/2000	62719-163
Canceled	1/25/2001	869-221
Canceled	1/25/2001	499-270
Canceled	1/25/2001	499-317
Canceled	1/25/2001	28293-321
Canceled	9/12/2001	46515-51
Canceled	9/12/2001	8845-30
Canceled	9/12/2001	9688-96
Canceled	9/12/2001	7401-448
Canceled	1/25/2002	239-2513
Canceled	1/25/2002	239-2635
Canceled	8/31/1994	192-176
Canceled	7/21/1998	192-175
Canceled	12/1/2000	769-873
Canceled	1/25/2001	572-213
Canceled	1/25/2002	239-2513
Canceled	1/25/2002	239-2635
Canceled	1/25/2002	239-2513
Canceled	9/12/2001	7401-448
Canceled	7/24/1984	WA840027
Canceled	7/30/1984	OR840025
Canceled	1/26/1989	CA880026
Canceled	6/26/1990	AZ900006
Canceled	12/1/2000	62719-56
Canceled	12/1/2000	62719-23
Canceled	12/1/2000	67760-23
Canceled	12/1/2000	42519-18
Canceled	1/25/2001	48273-16

ASPARAGUS (FOLIAR TREATMENT) ASPARAGUS (FOLIAR TREATMENT) ASPARAGUS (FOLIAR TREATMENT) ASPARAGUS (FOLIAR TREATMENT) **ASPARAGUS (FOLIAR TREATMENT)** ASPARAGUS (POSTHARVEST APPLICATION TO PLANTS) ASPARAGUS (POSTHARVEST APPLICATION TO PLANTS) ASPARAGUS (POSTHARVEST APPLICATION TO PLANTS) ASPARAGUS (SOIL TREATMENT) ASPARAGUS (SOIL TREATMENT) ASPARAGUS (SOIL TREATMENT) ASPARAGUS (SOIL TREATMENT) ATHLETIC FIELDS **AUTOMOBILES AUTOMOBILES (NON-RESIDUAL CONTACT TREATMENT) AUTOMOBILES (NON-RESIDUAL SPACE TREATMENT) AUTOMOBILES (RESIDUAL GENERAL TREATMENT)** 

Canceled	1/25/2001 28293-321
Canceled	9/12/2001 46515-51
Canceled	9/12/2001 8845-30
Canceled	9/12/2001 9688-96
Canceled	9/12/2001 7401-448
Canceled	1/26/1989 CA880026
Canceled	6/26/1990 AZ900006
Canceled	9/12/2001 46515-51
Canceled	12/1/2000 62719-56
Canceled	12/1/2000 42519-18
Canceled	1/25/2001 48273-16
Canceled	9/12/2001 8845-30
Canceled	10/10/1989 5298-20
Canceled	10/10/1989 788-18
Canceled	10/10/1989 45385-58
Canceled	9/30/1991 8845-75
Canceled	9/30/1991 8845-80
Canceled	7/19/1995 6175-49
Canceled	7/24/1996 7234-151
Canceled	7/19/1995 6175-49
Canceled	7/1/1987 491-255
Canceled	12/19/1988 11716-4
Canceled	12/19/1988 35138-48
Canceled	10/10/1989 861-113
Canceled	10/10/1989 1459-97
Canceled	10/10/1989 3298-36
Canceled	10/10/1989 3624-174
Canceled	10/10/1989 7056-124
Canceled	10/10/1989 7056-143
Canceled	10/10/1989 9143-84
Canceled	10/10/1989 9143-86
Canceled	10/10/1989 9591-102
Canceled	10/10/1989 9591-103
Canceled	10/10/1989 9591-105
Canceled	10/10/1989 9591-106
Canceled	10/10/1989 9591-115
Canceled	10/10/1989 9591-116
Canceled	10/10/1989 48760-1
Canceled	1/22/1991 52740-7
Canceled	9/30/1991 788-46
Canceled	9/30/1991 48211-68
Canceled	9/30/1991 9143-85
Canceled	9/30/1991 35138-46
Canceled	9/30/1991 478-106
Canceled	11/30/1992 5602-155
Canceled	11/30/1992 9591-104
Canceled	11/30/1992 334-517

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AUTOMOBILES (RESIDUAL GENERAL TREATMENT)
AUTOMOBILES (RESIDUAL GENERAL TREATMENT)

Canceled	11/30/1992 334-515
Canceled	11/30/1992 334-514
Canceled	11/30/1992 6175-48
Canceled	8/10/1993 29909-28
Canceled	8/31/1994 51793-102
Canceled	7/19/1995 5011-158
Canceled	7/24/1996 10370-60
Canceled	7/24/1996 7234-151
Canceled	7/24/1996 334-518
Canceled	7/9/1997 4816-694
Canceled	7/9/1997 432-656
Canceled	7/9/1997 432-654
Canceled	7/9/1997 432-652
Canceled	7/9/1997 432-651
Canceled	7/9/1997 432-646
Canceled	7/9/1997 432-680
Canceled	7/9/1997 432-676
Canceled	7/9/1997 432-624
Canceled	7/9/1997 432-589
Canceled	2/6/1998 499-359
Canceled	3/9/1998 499-271
Canceled	7/21/1998 50034-1
Canceled	7/21/1998 45036-1
Canceled	7/21/1998 788-19
Canceled	9/21/1998 499-360
Canceled	7/29/1999 1553-133
Canceled	8/25/2000 10370-222
Canceled	8/25/2000 527-128
Canceled	8/25/2000 10370-59
Canceled	8/25/2000 432-660
Canceled	8/25/2000 432-659
Canceled	8/25/2000 432-658
Canceled	8/25/2000 432-681
Canceled	8/25/2000 432-622
Canceled	8/25/2000 1685-94
Canceled	8/25/2000 9250-30
Canceled	12/1/2000 1021-1668
Canceled	12/1/2000 769-607
Canceled	12/1/2000 432-566
Canceled	12/1/2000 432-567
Canceled	12/1/2000 432-568
Canceled	12/1/2000 432-569
Canceled	1/25/2001 2155-127
Canceled	1/25/2001 11694-91
Canceled	1/25/2001 11715-163
Canceled	1/25/2001 3862-93
Canceled	1/25/2001 11715-312

**AUTOMOBILES (RESIDUAL GENERAL TREATMENT)** 

AZALEA (FOLIAR TREATMENT)

AZALEA (FOLIAR TREATMENT)

AZALEA (GREENHOUSE-FOLIAR TREATMENT)

**BAHIAGRASS (LAWNS) (FOLIAR TREATMENT)** 

BAHIAGRASS (LAWNS) (SOIL TREATMENT)

BAHIAGRASS (ORNAMENTAL TURF) (SOIL TREATMENT)

**BAKERIES (INDOOR-EDIBLE)** 

**BAKERIES (INDOOR-INEDIBLE)** 

BAKERIES (INDOOR-INEDIBLE)

BAKERIES (OUTDOOR-INEDIBLE)

BAKERIES (OUTDOOR-INEDIBLE)

BAKERIES (RESIDUAL CRACK AND CREVICE TREATMENT)

BAKERIES (RESIDUAL CRACK AND CREVICE TREATMENT)

BAKERIES (RESIDUAL SPOT TREATMENT-EDIBLE AREAS)

**BALSAM FIR (FOLIAR TREATMENT)** 

BALSAM FIR (FOLIAR TREATMENT)

**BALSAM FIR (NURSERY STOCK)** 

BALSAM FIR (NURSERY STOCK)

**BALSAM FIR (NURSERY STOCK)** 

BALSAM FIR (NURSERY STOCK)

BALSAM FIR (PLANTATION) (FOLIAR TREATMENT)

BALSAM FIR (PLANTATION) (FOLIAR TREATMENT)

**BANANA FRUIT BAG** 

**BANANAS (SOIL TREATMENT)** 

BARBERRY (FOLIAR TREATMENT)

BARBERRY (FOLIAR TREATMENT)

BARBERRY (GREENHOUSE-FOLIAR TREATMENT)

BARNS (OUTDOOR)

BARNS (OUTSIDE WALLS)

BARNS (UNSPECIFIED)

**BARS** 

**BASEBOARDS** 

**BASEBOARDS** 

**BASEBOARDS** 

**BASEMENTS** 

BATHROOMS/LAVATORIES (INDOOR)

BEANS (DRY) (SEED TREATMENT)

BEANS (FIELD) (SEED TREATMENT)

BEANS (GREEN) (SEED TREATMENT)

Canceled	3/8/2001 10807-119
Canceled	3/8/2001 10807-118
Canceled	7/11/2001 44446-51
Canceled	7/11/2001 40208-1
Canceled	7/11/2001 1270-217
Canceled	7/11/2001 45385-47
Canceled	9/12/2001 71949-7
Canceled	1/25/2002 10807-116
Canceled	1/25/2001 499-423
Canceled	3/8/2001 10807-118
Canceled	1/25/2001 499-364
Canceled	8/25/2000 10370-64
Canceled	1/25/2001 8660-10
Canceled	8/25/2000 9198-102
Canceled	8/25/2000 9688-44
Canceled	7/9/1997 432-676
Canceled	8/25/2000 9688-44
Canceled	5/1/1987 1677-50
Canceled	11/30/1992 5602-58
Canceled	2/21/1986 9782-18
Canceled	10/10/1989 3314-64
Canceled	8/31/1994 51793-175
Canceled	12/1/2000 42519-18
Canceled	1/25/2001 48273-16
Canceled	7/20/1998 MS980007
Canceled	12/1/2000 62719-23
Canceled	12/1/2000 42519-18
Canceled	1/25/2001 48273-16
Canceled	7/20/1998 MS980007
Canceled	12/1/2000 62719-23
Canceled	12/1/2000 62719-29
Canceled	2/21/1986 464-475
Canceled	1/25/2001 499-423
Canceled	3/8/2001 10807-118
Canceled	1/25/2001 499-364
Canceled	10/10/1989 49979-1
Canceled	12/1/2000 1812-428
Canceled	7/24/1996 334-518
Canceled	11/12/1992 7122-70
Canceled	9/29/1988 10944-8659
Canceled	7/9/1997 69421-72
Canceled	12/1/2000 432-1059
Canceled	1/25/2001 499-424
Canceled	1/25/2002 5481-216
Canceled	9/30/1991 34704-204
Canceled	7/19/1995 45728-22
Canceled	7/19/1995 45728-22

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BEANS (KIDNEY) (SEED TREATMENT)
BEANS (NAVY) (SEED TREATMENT)
BEANS (SEED TREATMENT)
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BEANS (SEED TREATMENT)

BEANS (SNAP) (SEED TREATMENT)

BEANS (SNAP) (SEED TREATMENT)

BEANS (SNAP) (SEED TREATMENT)

BEANS (STRING) (SEED TREATMENT)

BEANS (WAX) (SEED TREATMENT)

**BEEF CATTLE (ANIMAL TREATMENT)** 

**BEEF CATTLE (ANIMAL TREATMENT)** 

**BEEF CATTLE (ANIMAL TREATMENT)** 

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**BEEF CATTLE (ANIMAL TREATMENT)** 

BEEF CATTLE (ANIMAL TREATMENT)

**BEEF CATTLE (ANIMAL TREATMENT)** 

BEEF CATTLE (EAR TREATMENT)

**BEEF CATTLE (EAR TREATMENT)** 

**BEEF CATTLE (EAR TREATMENT)** 

**BEEF CATTLE (EAR TREATMENT)** 

BEEF CATTLE (EAR TREATMENT)

BEEF CATTLE (NONLACTATING) (ANIMAL TREATMENT)

**BEGONIA (CONTAINERIZED)** 

**BEGONIA (CONTAINERIZED)** 

BEGONIA (GREENHOUSE-FOLIAR TREATMENT)

BENTGRASS (LAWNS) (FOLIAR TREATMENT)

BENTGRASS (LAWNS) (SOIL TREATMENT)

BENTGRASS (ORNAMENTAL TURF) (SOIL TREATMENT)

Canceled	7/19/1995 45728-22
Canceled	7/19/1995 45728-22
Canceled	1/14/1981 TX810001
Canceled	4/15/1981 IN810010
Canceled	1/22/1981 WA800100
Canceled	9/30/1991 34704-204
Canceled	7/19/1995 45728-22
Canceled	7/19/1995 45728-22
Canceled	7/19/1995 45728-22
Canceled	1/30/1978 SD770005
Canceled	4/24/1978 ND780001
Canceled	5/16/1979 UT790005
Canceled	4/9/1985 LA850003
Canceled	4/25/1985 AL850001
Canceled	5/17/1985 AR850003
Canceled	7/24/1985 TX850007
Canceled	11/5/1985 MS850005
Canceled	12/30/1985 TN850009
Canceled	1/21/1986 NV860002
Canceled	3/7/1986 NC860001
Canceled	2/22/1987 NM870002
Canceled	2/26/1987 MT870001
Canceled	4/16/1987 IA870002
Canceled	4/28/1987 KY870003
Canceled	10/10/1989 4691-115
Canceled	1/22/1991 62719-36
Canceled	1/22/1991 410-82
Canceled	1/22/1991 602-304
Canceled	7/9/1997 58639-1
Canceled	7/9/1997 58639-2
Canceled	10/25/2000 4691-114
Canceled	8/22/1976 TX760004
Canceled	5/22/1977 TX770003
Canceled	10/3/1977 OK770006
Canceled	6/13/1978 AR780005
Canceled	1/7/1986 FL850011
Canceled	3/26/1986 VA860001
Canceled	12/10/1986 SD860008
Canceled	12/30/1986 ND860004
Canceled	4/17/1987 WY870003
Canceled	10/10/1989 4691-115
Canceled	1/25/2001 499-364
Canceled	1/25/2001 499-423
Canceled	1/25/2001 499-364
Canceled	8/25/2000 10370-64
Canceled	1/25/2001 538-140
Canceled	1/25/2001 538-153

**BENTGRASS (SOIL TREATMENT)** 

BERMUDAGRASS (GOLF COURSES) (SOIL TREATMENT)

BERMUDAGRASS (GROWN FOR SOD) (NURSERY)

BERMUDAGRASS (LAWNS) (FOLIAR TREATMENT)

BERMUDAGRASS (LAWNS) (SOIL TREATMENT)

BERMUDAGRASS (LAWNS) (SOIL TREATMENT)

BERMUDAGRASS (ORNAMENTAL TURF) (SOIL TREATMENT)

BERMUDAGRASS (SOIL TREATMENT)

**BEVERAGE PLANTS** 

**BIRCH (BARK TREATMENT)** 

**BIRCH (BARK TREATMENT)** 

**BIRCH (BARK TREATMENT)** 

**BIRCH (BARK TREATMENT)** 

**BIRCH (FOLIAR TREATMENT)** 

**BIRCH (FOLIAR TREATMENT)** 

**BIRCH (FOLIAR TREATMENT)** 

BIRD ROOSTING AREAS (POLES) (OUTDOOR)

**BLACKEYED PEAS (SEED TREATMENT)** 

**BLUE SPRUCE (FOLIAR TREATMENT)** 

**BLUE SPRUCE (FOLIAR TREATMENT)** 

**BLUE SPRUCE (NURSERY)** 

**BLUE SPRUCE (NURSERY)** 

**BLUE SPRUCE (NURSERY)** 

**BLUE SPRUCE (NURSERY)** 

**BLUE SPRUCE (PLANTATION) (FOLIAR TREATMENT)** 

BLUE SPRUCE (PLANTATION) (FOLIAR TREATMENT)

**BLUEGRASS (FOLIAR TREATMENT)** 

**BLUEGRASS (LAWNS) (FOLIAR TREATMENT)** 

**BLUEGRASS (LAWNS) (FOLIAR TREATMENT)** 

**BLUEGRASS (LAWNS) (FOLIAR TREATMENT)** 

**BLUEGRASS (LAWNS) (SOIL TREATMENT)** 

BLUEGRASS (ORNAMENTAL TURF) (SOIL TREATMENT)

**BOAT DOCKS (WOOD)** 

**BOATS (WOOD)** 

BOATS/SHIPS (NON-RESIDUAL CONTACT TREATMENT)

BOATS/SHIPS (NON-RESIDUAL SPACE TREATMENT)

**BOATS/SHIPS (NON-RESIDUAL SPACE TREATMENT)** 

**BOATS/SHIPS (NON-RESIDUAL SPACE TREATMENT)** 

**BOATS/SHIPS (NON-RESIDUAL SPACE TREATMENT)** 

Canceled	10/10/1989 7001-303
Canceled	1/25/2001 8660-152
Canceled	1/25/2001 8660-152
Canceled	8/25/2000 10370-64
Canceled	1/25/2001 8660-10
Canceled	1/25/2001 8660-152
Canceled	8/25/2000 9198-102
Canceled	10/10/1989 7001-303
Canceled	2/21/1986 9782-18
Canceled	12/1/2000 769-873
Canceled	1/25/2001 572-213
Canceled	1/25/2002 239-2513
Canceled	1/25/2002 239-2635
Canceled	3/8/2001 10807-118
Canceled	1/25/2002 239-2513
Canceled	1/25/2002 239-2635
Canceled	7/11/2001 45385-54
Canceled	7/19/1995 45728-22
Canceled	12/1/2000 42519-18
Canceled	1/25/2001 48273-16
Canceled	7/20/1998 MS980007
Canceled	12/1/2000 62719-23
Canceled	12/1/2000 42519-18
Canceled	1/25/2001 48273-16
Canceled	7/20/1998 MS980007
Canceled	12/1/2000 62719-23
Canceled	1/25/2001 8660-78
Canceled	12/19/1988 35138-51
Canceled	8/25/2000 10370-37
Canceled	1/25/2001 11746-15
Canceled	1/25/2001 538-140
Canceled	1/25/2001 538-153
Canceled	3/4/1986 35053-5212
Canceled	3/4/1986 35053-5212
Canceled	9/30/1991 8845-75
Canceled	9/30/1991 8845-80
Canceled	3/16/1993 499-278
Canceled	7/19/1995 6175-49
Canceled	7/24/1996 7234-151
Canceled	7/24/1996 9444-91
Canceled	7/29/1999 5602-185
Canceled	8/25/2000 478-111
Canceled	8/25/2000 499-457
Canceled	7/19/1995 6175-49
Canceled	7/21/1998 28293-132
Canceled	7/21/1998 11715-137
Canceled	1/25/2001 26693-5
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BOATS/SHIPS (NON-RESIDUAL) (GENERAL TREATMENT) BOATS/SHIPS (NON-RESIDUAL) (GENERAL TREATMENT) BOATS/SHIPS (NON-RESIDUAL) (GENERAL TREATMENT) **BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT)** BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) **BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT)** BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) **BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT)** BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) **BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT)** BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) **BOATS/SHIPS (RESIDUAL GENERAL TREATMENT)** BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) **BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT)** BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) **BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT)** BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) **BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT)** BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) **BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT)** BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) **BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT)** BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) **BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT)** BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) **BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT)** 

**BOATS/SHIPS (RESIDUAL GENERAL TREATMENT)** 

Canceled	11/30/1992 1203-70
Canceled	3/9/1998 499-386
Canceled	9/12/2001 5602-204
Canceled	7/1/1987 491-255
Canceled	12/19/1988 11716-4
Canceled	12/19/1988 35138-48
Canceled	10/10/1989 861-113
Canceled	10/10/1989 3298-36
Canceled	10/10/1989 3624-174
Canceled	10/10/1989 7056-124
Canceled	10/10/1989 8730-10
Canceled	10/10/1989 9143-84
Canceled	10/10/1989 9591-105
Canceled	10/10/1989 9591-106
Canceled	10/10/1989 9591-116
Canceled	10/10/1989 9782-70
Canceled	10/10/1989 12192-3
Canceled	1/22/1991 52740-7
Canceled	9/30/1991 788-46
Canceled	9/30/1991 48211-68
Canceled	9/30/1991 9143-85
Canceled	9/30/1991 48760-14
Canceled	9/30/1991 9782-69
Canceled	9/30/1991 478-106
Canceled	11/16/1992 499-299
Canceled	11/30/1992 9591-104
Canceled	11/30/1992 334-515
Canceled	11/30/1992 334-514
Canceled	11/30/1992 6175-48
Canceled	8/10/1993 4000-107
Canceled	8/31/1994 51793-102
Canceled	8/31/1994 48760-24
Canceled	7/19/1995 5011-158
Canceled	7/24/1996 62451-1
Canceled	7/24/1996 10370-60
Canceled	7/24/1996 7234-151
Canceled	7/24/1996 334-518
Canceled	7/9/1997 4816-694
Canceled	7/9/1997 432-656
Canceled	7/9/1997 432-654
Canceled	7/9/1997 432-652
Canceled	7/9/1997 432-651
Canceled	7/9/1997 432-647
Canceled	7/9/1997 432-646
Canceled	7/9/1997 432-680
Canceled	7/9/1997 432-676
Canceled	7/9/1997 432-624

**BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT)** BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) **BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT)** BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) **BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT)** BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) **BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT)** BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) **BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT)** BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) **BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT)** BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) **BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT)** BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) **BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT)** BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) **BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT)** BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) **BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT)** BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) **BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT)** BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) **BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT) BOATS/SHIPS (RESIDUAL GENERAL TREATMENT)** 

Canceled	7/9/1997 432-589
Canceled	2/6/1998 499-359
Canceled	2/6/1998 499-237
Canceled	3/9/1998 499-271
Canceled	7/21/1998 45036-1
Canceled	9/21/1998 499-360
Canceled	7/29/1999 1553-133
Canceled	8/25/2000 10370-222
Canceled	8/25/2000 527-128
Canceled	8/25/2000 10370-59
Canceled	8/25/2000 432-660
Canceled	8/25/2000 432-659
Canceled	8/25/2000 432-658
Canceled	8/25/2000 432-681
Canceled	8/25/2000 432-622
Canceled	8/25/2000 1685-94
Canceled	8/25/2000 9250-30
Canceled	8/25/2000 499-466
Canceled	12/1/2000 1021-1668
Canceled	12/1/2000 769-607
Canceled	12/1/2000 432-566
Canceled	12/1/2000 432-567
Canceled	12/1/2000 432-568
Canceled	12/1/2000 432-569
Canceled	12/1/2000 1021-1693
Canceled	1/25/2001 499-379
Canceled	1/25/2001 2155-127
Canceled	1/25/2001 11715-299
Canceled	1/25/2001 499-147
Canceled	1/25/2001 11694-91
Canceled	1/25/2001 3862-93
Canceled	1/25/2001 6959-73
Canceled	1/25/2001 499-315
Canceled	1/25/2001 11715-312
Canceled	1/25/2001 499-292
Canceled	1/25/2001 26693-3
Canceled	3/8/2001 10807-119
Canceled	3/8/2001 10807-118
Canceled	7/11/2001 44446-51
Canceled	7/11/2001 402-130
Canceled	7/11/2001 1270-217
Canceled	7/11/2001 45385-47
Canceled	9/12/2001 9444-93
Canceled	9/12/2001 71949-7
Canceled	9/12/2001 71949-8
Canceled	1/25/2002 10807-116
Canceled	1/25/2002 5481-240

**BOOKCASES BOOKCASES** BOOKCASES **BOOKCASES BOSTON FERN (FOLIAR TREATMENT) BOSTON FERN (GREENHOUSE-FOLIAR TREATMENT) BOTTLING PLANTS (INDOOR EDIBLE) BOTTLING PLANTS (INDOOR EDIBLE)** BOTTLING PLANTS (INDOOR INEDIBLE) BOTTLING PLANTS (RESIDUAL CRACK AND CREVICE TREATMENT) BOTTLING PLANTS (RESIDUAL CRACK AND CREVICE TREATMENT) **BROCCOLI (FOLIAR TREATMENT) BROCCOLI (FOLIAR TREATMENT) BROCCOLI (SEED CROP SOIL TREATMENT) BROCCOLI (SOIL TREATMENT) BROCCOLI (SOIL TREATMENT)** BROCCOLI (SOIL TREATMENT) BROCCOLI (SOIL TREATMENT) **BROCCOLI (SOIL TREATMENT) BROCCOLI (SOIL TREATMENT) BROCCOLI (SOIL TREATMENT)** BROCCOLI (SOIL TREATMENT) **BROCCOLI (SOIL TREATMENT) BROCCOLI (SOIL TREATMENT) BROCCOLI (SOIL TREATMENT)** BROCCOLI (SOIL TREATMENT) **BROCCOLI (SOIL TREATMENT) BROCCOLI (SOIL TREATMENT)** BROCCOLI (SOIL TREATMENT) BROCCOLI (SOIL TREATMENT) **BROCCOLI (SOIL TREATMENT) BROCCOLI (SOIL TREATMENT)** BROCCOLI (SOIL TREATMENT) **BROCCOLI (SOIL TREATMENT)** 

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